








The influence of the pilates method on the quality of life of its practitioners: a systematic review

Fabrício Sette Abrantes Silveira^{1*} , Lívia Carvalho Sette Abrantes¹ ,
Oswaldo Costa Moreira¹ , Pedro Paulo do Prado Júnior¹ ,
Flávio de Jesus Camilo¹ , Felipe José Aidar² , Eveline Torres Pereira¹ 

ABSTRACT

Created in Germany by Joseph Pilates in the 1920s, the Pilates Method (PM) uses exercises aiming to improve physical health and mental balance. The present work objective was to verify, through a systematic literature review without delineating languages and dates, the influence of PM on the quality of life (QoL) of its practitioners. Medline, Embase, Web of Science, Scopus, and Google Scholar databases were consulted. The articles were independently selected by two researchers, who also conducted the risk of bias assessment of the included articles. Were identified 2489 articles on the databases, of which 30 were included in the study synthesis. The practice of PM improves the QoL of its practitioners, providing enhanced functional capacity, pain relief, and improvement of emotional aspects in individuals of both sexes, different age groups, and different clinical contexts.

KEYWORDS: Pilates method; quality of life; functional capacity; pain; mental health.

INTRODUCTION

The term quality of life (QoL) has never been so popular in our country, precisely because of the current moment the world is going through. However, due to its complexity and use in different areas of study, its definitions are presented in varied ways, and several factors are taken as foundations for its definition, carrying with them a subjective, cultural, and historical essence, having as the primary source of information individuals themselves (Araújo & Bós, 2017).

The World Health Organization (WHO) conceptualized QoL as the individual's perception of their position in life, related to their goals, expectations, standards, and concerns (WHO, 1997).

Due to the conceptual dynamism of the term QoL, numerous factors influence its context. Health-related quality of life encompasses the impact of illnesses as well as the various

forms of therapeutic interventions which, under the individual's perception, promote change in their health, whether physical, psychological, social, and/or spiritual (Aguilar et al., 2021).

Pilates Method (PM) appears as a therapeutic intervention model that can contribute to the QoL improvement of its practitioners. Created by the German Joseph Pilates, the method aims to benefit through integration between body and mind, enabling individuals to overcome their limitations and relieve pain and stress (Roh, 2019).

This method principle relies on the execution of integrative movements between body and mind through synchronism between fluidity, concentration, breathing, and muscle contraction (Melo et al., 2020).

Composed of a wide range of exercises that cater to audiences of different age groups and functional profiles, PM aims to stimulate the body to benefit the physical and

¹Universidade Federal de Viçosa – Viçosa (MG), Brazil.

²Universidade Federal de Sergipe – São Cristóvão (SE), Brazil.

*Corresponding author: Avenida Peter Henry Rolfs, s/n, Campus Universitário – CEP: 36570-900 – Viçosa (MG), Brazil. E-mail: fabricio.sette@ufv.br

Conflict of interests: nothing to declare. **Funding:** Research Support Foundation of the State of Minas Gerais (FAPEMIG, Brazil), Coordination for the Improvement of Higher Education Personnel (CAPES, Brazil), and National Council for Scientific and Technological Development (CNPq, Brazil).

Received: 11/08/2021. **Accepted:** 01/17/2022.

emotional aspects that impact the quality of life of its practitioners (Vilella, León-Zarceño, & Serrano-Rosa, 2017).

Pilates Method is characterized as a complete activity for working the body as a whole, associating physical and mental conditioning, body awareness, postural correction, strength, and flexibility, which, collectively, contribute to the improvement of muscle imbalances, as well as structural and emotional stability of the individual, favouring a healthier life (Bezerra, Araújo, Elizabeth, & Araújo, 2020).

In recent years, research on PM has intensified alongside the dissemination of the method and the increase in practitioners. The method has been increasingly used as a therapeutic and preventive method, with favourable results for improving the QoL of its adherents (Pereira, Flach, & Haas, 2018).

The benefits for QoL with the practice of PM were related to improvement in levels of depression, anxiety, and pain in a study with patients with fibromyalgia (Cordeiro et al., 2020). However, Kim et al. (2019) observed in their study with patients diagnosed with fibromyalgia that flexibility activities — such as those performed in PM — had lower results in terms of QoL when compared to aerobic activities.

The results achieved through PM can motivate its practitioners and be used as an alternative approach to traditional exercises, such as walking. Vancini, Rayes, Lira, Sarro, and Andrade (2017) found that eight weeks (three sessions/week) of Pilates and aerobic training, with monitored and progressively adjusted intensity, had a positive impact on improving general health, self-esteem, emotional and psychological state, mood, and motivation of practitioners.

In sedentary patients, Leopoldino et al. (2013) found that an increase in QoL through the practice of PM was linked to the improvement of sleep quality of the volunteers. In women with postmenopausal osteoporosis, PM contributed to improving QoL by promoting improvement in functional capacity (Küçükçakır, Altan & Korkmaz, 2013).

A similar result was evidenced in research with individuals diagnosed with chronic low back pain, where the practice of PM increased the practitioners' QoL by improving their range of motion and pain (Natour, Cazotti, Ribeiro, Baptista, & Jones, 2015). The practice of PM has also contributed to reducing pain and enhancing the range of motion and functional capacity in patients with juvenile idiopathic arthritis, improving patients' QoL (Mendonça et al., 2013).

Therefore, the choice to carry out a literature systematic review on the influence of PM on the QoL of its practitioners is justified by providing scientific standards. Such standards minimize errors and favour reliable results to synthesize

the information provided by different authors in different countries, thus elaborating an important instrument to base the method, health management, and clinical practice (Impellizzeri and Bizzini, 2012).

In this sense, despite varied evidence that indicates the effectiveness of PM for health, the novelty of this study lies in the compilation of information about aspects relating to the influence of PM on the QoL of its practitioners, therefore expanding and updating knowledge about the application of the method and allowing for an expansion of clinical indications.

METHODS

Protocol and registration

This review was developed following the PRISMA 2020 protocol — Preferred Reporting Items for Systematic Reviews and Meta-analyses and was registered in the International Prospective Register of Systematic Reviews (PROSPERO): number CRD42021273295.

Eligibility criteria

Observational and experimental studies may be included, as long as they investigate the relationship between the practice of the Pilates Method in people over 18 years of age and their QoL, without delimiting dates, in any language or location. Review studies, letters to the editors, qualitative analyses, case studies or book chapters, and studies that included people under 18 years of age will be excluded.

Information sources and research strategy

The search strategy was developed based on the Peer Review of Electronic Search Strategies (PRESS) list of recommendations (McGowan et al., 2016) and sent to two investigators for review.

The following databases were used (Appendix 1): MEDLINE, Embase, Web of Science, Scopus and Google Scholar. The search strategy used for MEDLINE was: (“Pilates Practitioners”[Title/Abstract]) OR (“Young People”[Title/Abstract]) OR (“Old People”[Title/Abstract]) OR (Aged[Title/Abstract]) OR (Elderly[Title/Abstract]) OR (Young[Title/Abstract]) OR Adult [Title/Abstract] AND (“Pilates”[Title/Abstract] OR “Pilates Training”[Title/Abstract] OR “Pilates Based Exercises”[Title/Abstract] OR “Pilates based exercises”[Title/Abstract] OR “Pilates Based Exercises”[Title/Abstract] OR “training Pilates”[Title/Abstract] OR

“Pilates Method”[Title/Abstract]) OR “Motor activity”[Title/Abstract] OR “Pilates Exercise”[Title/Abstract] OR “Pilates Activity” [Title/Abstract] AND (“Quality of life”[Title/Abstract] OR “Lifestyle”[Title /Abstract] OR “Life Quality”[Title/Abstract] OR “health related quality of life”[Title/Abstract] OR “Health Related Quality”[Title/Abstract] OR “HRQOL”[Title/Abstract]) AND (Observational OR “Observational Study” OR Survey OR “Cross - Sectional” OR “Cross sectional” OR Cohort OR Association OR Relationship OR Correlation).

Searches were initiated and finished in May 2021.

Selection of studies and data extraction

The studies were selected in two phases by two researchers independently (FSAS e LCSA). The studies were selected by title and abstract in the first phase, always following the eligibility criteria. In the second phase, the selected articles were fully read, and a selection was made again to see if they would meet the inclusion criteria.

Afterwards, the two investigators (FSAS e LCSA) met to resolve any disagreement about the selection. A search was also carried out in the bibliographic references of the selected articles to verify any possible studies that could be incorporated into this review. The participation of a third researcher was not necessary, as all differences between the two main ones were resolved.

The characteristics of the selected articles were distributed in three tables, with the following information: Author and year; country of study; sample (n sample, sex, and age); evaluated population, study design, and objective; quality of life assessment instruments and respective scores by domains; method of evaluation of the Pilates practice and its respective results; types of statistical tests used, adjustment variables, main results, and one final question: “What is the influence of PM in improving the QoL of its practitioners?”.

Risk of bias in individual studies

The instrument recommended by the Joanna Briggs Institute (Moola, Munn, & Tufanaru, 2017) for experimental studies was used to assess the risk of bias.

The instrument for experimental studies consists of thirteen questions: “Was true randomization used to assign participants to treatment groups”; “Was assignment to treatment groups hidden”; “Were treatment groups similar at baseline”; “Were participants blinded to treatment assignment”; “Were those delivering treatment blinded to treatment assignment”; “Were outcome assessors blinded to treatment assignment”; “Were

treatment groups treated identically beyond the intervention of interest”; “Was it the full follow-up and, otherwise, were the differences between groups in terms of follow-up adequately described and analyzed”; “Were participants analyzed in the groups in which they were randomized”; “Were outcomes measured in the same way for the treatment groups”; “Were results reliably measured”; “Was appropriate statistical analysis used”; “Were the proper trial design, and any deviations from the standard RCT design (individual randomization, parallel groups), accounted for in the conduct and analysis of the trial.”

Questions were answered as “yes”, “no”, “not clear” or “not applicable”. If all answers are “yes” for all items, the risk of bias will be low, and if any item is rated “no,” a high risk of bias is expected. This assessment was not used as an eligibility criterion for the inclusion of articles.

RESULTS

Selection of studies

Figure 1 shows the selection steps and the number of final articles included in the review. Appendix 2 shows the excluded articles and the reason for the exclusion (supplementary material).

Study characteristics

Table 1 presents the general objective of each study and other characteristics. After the selection steps, 30 articles were selected, which included a control group and a group with the intervention performing PM. The studies were published between 2009 and 2020. The studies were carried out in several countries, and the largest number were carried out in Brazil ($n= 10$; 33.33%) and Turkey ($n= 10$; 33.33%). The total sample consisted of 1,624 individuals.

Results of individual studies

Tables 2 and 3 show the results of the relationship between PM and aspects connected to the improvement of the QoL of its practitioners, showing the various instruments used to assess the variables of interest, statistical tests, adjustment variables, and the main outcomes.

Risk of bias in individual studies

Two leading investigators independently (FSAS e LCSA) performed the risk of bias assessment. There were no differences between the two evaluators. Of the 30 articles evaluated, 10.3% ($n= 3$) had a low risk of bias (Appendix 3), with only “yes” answers for all parameters evaluated (Figure 2).

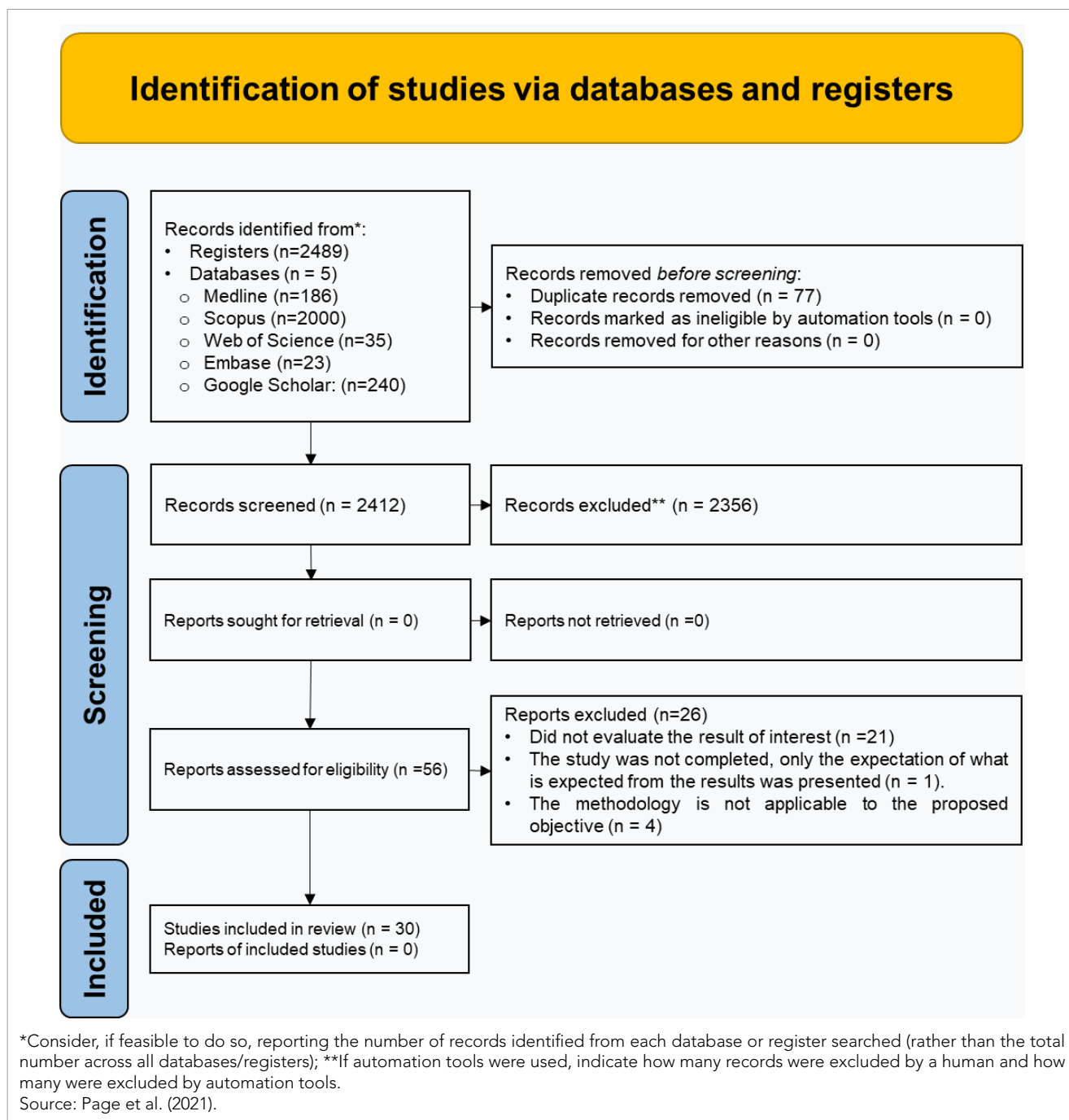


Figure 1. Flow diagram for new systematic reviews which included searches of databases and registers only. Adapted from PRISMA 2020.

DISCUSSION

The present study aimed to identify, through a systematic literature review, the influence of PM on the QoL of its practitioners. From the evaluation of the selected articles, it became evident that the practice of PM improved QoL in individuals of both sexes with different clinical conditions and established diagnoses.

Pilates Method is already recognized for its effectiveness in physical health. Thus, evaluating its importance in the QoL of its practitioners widens the horizon of application of the technique regarding clinical indications for which Pilates can be recommended. Among the selected studies, it was possible to verify scientific productions on the subject in different parts of the world, with a predominance of publications

Table 1. Description of included studies.

Author/Year	Country	Sample (n, sex, age)	Evaluated population	Study design	Aim of the study
Altan, Korkmaz, Bingol, and Gunay (2009)	Turkey	55. Both Sexes. 28 to 69 years. Mean age: 45.23±10.73.	People with ankylosing spondylitis	Randomized, prospective, controlled, and single-blind trial.	To investigate the effects of Pilates on pain, functional status, and QoL in patients with ankylosing spondylitis.
Angin et al. (2015)	Turkey	41. Female. Age: 40 - 69 years	Women with postmenopausal osteoporosis	Randomized clinical trial.	To investigate the effects of Clinical Pilates Exercises on BMD, physical performance, and QoL in postmenopausal osteoporosis.
Borges et al. (2014)	Brazil	22. Both sexes. 18 to 65 years	Patients with HTLV-1.	Randomized crossover clinical trial	To assess the effect of Pilates exercises on chronic low back pain in these patients and its impact on QoL.
Campos de Oliveira, Gonçalves de Oliveira, Pires-Oliveira (2015)	Brazil	16. Both sexes. Mean age, 63.62±1.02 years.	Older adults.	Randomized, controlled, clinical trial	To determine the effects of Pilates on lower leg strength, postural balance and the HROoL of older adults.
Eyigor, Karapolat, Yesil, Uslu, & Durmaz (2010)	Turkey	52. Female. 18 to 75 years.	Female breast cancer patients.	Randomized controlled trial.	To investigate the impact of Pilates exercises on physical performance, flexibility, fatigue, depression, and QoL in women who had been treated for breast cancer.
Gandolfi, Corrente, De Vitta, Gollino, and Mazeto(2012)	Brazil	40. Female. 60 years and older.	Older Women	Longitudinal prospective study with intervention	To evaluate the effects of the Pilates method on QoL and bone remodelling markers in a group of older women.
García-Soidán et al. (2014)	Spain	99. Both Sexes. Mean age: 47.6±0.8 years.	Middle-Aged People.	Prospective Experimental Study	To evaluate the effects of a 12-week Pilates exercise program in sedentary, middle-aged individuals
Karaman, Yuksel, Kinikli, & Caglar (2017)	Turkey	46. Both Sexes. 55 to 85 years.	Total knee arthroplasty	Prospective, randomized, controlled study with intervention	To investigate the effect of the addition of Pilates-based exercises to standard exercise programs performed after total knee arthroplasty on QoL and balance.
Kheirkhah, Mirsane, Ajorpaz, & Rezaei (2016)	Iran	60. Both sexes. 18 to 70 years. PG: mean age 40.1±1.8 years.	Patients on Hemodialysis	Clinical trial	To define the effect of Pilates exercise on the QoL of patients on hemodialysis referred to selected hospitals in Kashan.
Kofotolis, Kellis, Vlachopoulos, Goutas, & Theodorakis (2016)	Greece	101. Female. Age 25–65 years,	Patients with Chronic low back pain	Randomized clinical trial.	To compare the effects of a Pilates program and a trunk strengthening exercise program on functional disability and HROoL in women with non-specific chronic low back pain.
Vécseyné Kovách, Kopkáné Plachy, Bognár, Olvaszóné Balogh, & Barthalos (2013)	Hungary	54. Both sexes. Mean age 66.4±6.2 years.	Retired elderly.	Randomly assigned	To measure the effects of Pilates and aqua fitness training on functional fitness and QoL in older individuals.
Küçük, Kara, Poyraz, & İduman (2016)	Turkey	20. Both Sexes.	Multiple sclerosis patients.	Controlled randomized study.	To determine the effects of clinical Pilates in multiple sclerosis patients.
Küçükçakır et al. (2013)	Turkey	70. Female. 45 to 65 years.	Women with postmenopausal osteoporosis	Randomized, prospective, controlled, and single-blind trial.	To evaluate the effects of the Pilates exercise program on pain, functional status, and QoL in women with postmenopausal osteoporosis.
Lim and Park (2019)	South Korea.	90. Both Sexes. 30 to 40 years.	Yoga Community and Korean Pilates Federation participants.	Randomized clinical trial.	To investigate the effect of Pilates and yoga participation on their functional movement and individual health level.
Liposcki, da Silva Nagata, Silvano, Zanella, & Schneider (2019)	Brazil	24. Female. Pilates Group: Mean age: 63.7±3.3 years.	Sedentary elderly people	Blind, controlled clinical trial	To verify the effects of a Pilates exercise program on the QoL of sedentary elderly people.
Medeiros et al. (2020)	Brazil	42. Female. 18 to 60 years	Women with fibromyalgia.	Clinical, randomized, and blind trial.	To evaluate the effectiveness of the mat Pilates method for improving symptoms in women with fibromyalgia.

Continue...

Table 1. Continuation.

Author/Year	Country	Sample (n, sex, age)	Evaluated population	Study design	Aim of the study
Natour, Cazotti, Ribeiro, Baptista, and Jones (2015)	Brazil	60. Both Sexes. 18 to 50 years.	Chronic low back pain	Randomized controlled trial	To assess the effectiveness of the Pilates method on patients with chronic non-specific low back pain (LBP).
Odynets, Briskin, and Todorova (2019)	Ukraine	115. Female. 50 and 60 years.	Breast Cancer Surgery Rehabilitation	Randomized, prospective, controlled trial.	To evaluate the effects of different exercise interventions on QoL parameters in breast cancer patients during one year of outpatient rehabilitation.
Oliveira, Oliveira, and Pires-Oliveira (2018)	Brazil	51. Female. 40 to 70 years.	Postmenopausal women.	Randomized controlled clinical trial	To compare the effects of Pilates vs whole-body vibration (WVB) on isokinetic muscle strength and QoL in postmenopausal women.
Oliveira et al. (2019)	Brazil	51. Both Sexes. 18 years and older.	Patients with a confirmed diagnosis of Chikungunya fever.	Blind, controlled clinical trial	To evaluate the effects of the Pilates method on the reduction of pain, improvement of joint function, and QoL of patients with chronic Chikungunya fever.
Özyemişçi Taşkıran et al. (2014)	Turkey	58. Both sexes. Mean age 78± 6.8 years.	Elderly living in a nursing home.	Randomized clinical trial.	To investigate whether Pilates and yoga affect QoL and physical performance of elderly subjects living in a nursing home.
Rahimimoghdam, Rahemi, Sadat, & Mirbagher Ajorpaz (2018)	Iran	50. Both sexes. 18 to 65 years.	Patients with chronic kidney diseases	Randomized controlled clinical trial.	To determine the effect of Pilates exercises on the QoL of CKD patients.
Rodrigues, Ali Cader, Bento Torres, Oliveira, & Martin Dantas (2010)	Brazil	52. Female. 60 to 78 years.	Elderly Female	Randomized controlled clinical trial.	To evaluate the effects of the Pilates method on personal autonomy, static balance, and QoL in healthy elderly females.
Saltan and Ankarali (2021)	Turkey	92. Both sexes. 18 to 25 years. PG: Mean age: 18.82± 1.071.	University students.	Randomized controlled trial	To investigate the effects of the Pilates exercise program on HRQoL, pain, functional level, and depression status in university students.
Surbala Devi et al. (2013)	India	23. Both Sexes. Mean age: Pilates Group: 57± 5.2 Years; Control Group: 59± 5.5 years.	Sub-Acute Stroke Subjects.	Randomized Controlled	To evaluate the effects of Pilates training on functional balance and QoL in sub-acute Stroke subjects.
Surbala Devi, Ratan, Parth, Bhatt, & Vasveliya (2014)	India	51. Both sexes. PG: mean age: 70.7± 2.7 years.	Elderly.	Blinded prospective randomized controlled.	To compare the effectiveness of PI and CBT in improving functional balance and QoL in elderly individuals.
Vancini, Rayes, Lira, Sarro, & Andrade (2017)	Brazil	63. Both sexes. 18 to 66 years.	Overweight and obese individuals	Randomized blinded and controlled.	To compare the effects of Pilates and walking on QoL, depression, and anxiety levels
Yentür, Atas, Öztürk, & Oskay (2021)	Turkey	30. Both Sexes. 18 to 65 years.	Rheumatoid arthritis	Randomized clinical trial	To compare the effects of Pilates exercises, aerobic exercises, and combined training, including Pilates with aerobic exercises, on fatigue, depression, aerobic capacity, pain, sleep quality, and QoL.
Yucel and Omer (2018)	Turkey	56. Female. Age: 18 - 65 years.	Women with type 2 diabetes	Randomized clinical trial	To investigate the effects of PBME on glycemic control, anxiety, depression, and QoL in women with type 2 diabetes.
Yun et al. (2017)	Korea	40. Both Sexes. Mean age 63.5± 3.5	Chronic stroke patients	Randomized clinical trial.	To observe the influence of Pilates training on the QoL in chronic stroke patients.

ATR: Angle of trunk rotation; BMD: bone mineral density; CBT: Conventional Balance Training; CKD: chronic kidney diseases; HAM/TSP: HTLV-1-associated myelopathy/tropical spastic paraparesis; HLTV-1: Human T-cell Lymphotropic Virus 1; HRQoL: Health-related quality of life; JIA: Juvenile idiopathic arthritis; MP: Mat Pilates; PBME: Pilates-based mat exercise; PG: Pilates Group; PI: Pilates intervention; pwMS: persons with multiple sclerosis; QoL: Quality of Life; RT: Resistance Training; TC: Tai Chi Chuan; USA: United States of America.

Table 2. Instruments used to assess the quality of life and the practice of Pilates and their respective results.

Author/Year	QoL Instrument	QoL Result-Score	Evaluation method of pilates practice	Pilates practice results
Altan et al. (2009)	ASQOL	PG before training: ASQoL: Week 1: 3.7± 4.6; PG after training: Week 12: 4± 4.9; Week 24: 4± 4.8.	Three sessions/week. For 1 hour. 12 weeks.	In the Pilates group, ASQoL, BASFI, BASMI, BASDAL, and chest expansion scores improved.
Angin et al. (2015)	QUALEFFO-41	PG before training: Pain: 77.09± 10.33; DA: 89.28± 6.83; HW: 73.14± 11.72; Mobility: 84.43± 8.20; SA: 62.01± 12.22; GH: 52.05± 9.24; MF: 60.20± 10.19; PG after training: Pain: 63.18± 12.30; DA: 81.60± 13.79; HW: 62.27± 15.47; Mobility: 73.12± 13.22; SA: 39.98± 14.81; GH: 35.07± 12.83; MF: 51.95± 10.09.	Three sessions/week, for 1 hour. 24 weeks	Pilates Exercise effectively increases BMD, QoL, walking distance, and is also beneficial to relieve pain. Physiotherapists can use Pilates Exercises for the subjects with osteoporosis in the clinics.
Borges et al. (2014)	SF-36	PG before training: PI: 7.18± 2.35; PF: 23.18± 14.88; PRF: 18.18± 31.80; BP: 31.82± 14.75; GHP: 46.36± 24.13; VIT: 23.18± 18.20; SRF: 46.59± 30.15; ERF: 33.36± 42.19; MH: 56.73± 24.71. PG after training: PI: 3.45± 2.54; PF: 41.82± 20.16; PRF: 72.73± 32.51; BP: 60.64± 20.11; GHP: 52.73± 25.73; VIT: 56.36± 22.70; SRF: 69.31± 20.43; ERF: 63.65± 40.71; MH: 69.82± 25.45.	Two sessions/week, for 1 hour. 15 weeks.	To sum up, Pilates proved to be a useful tool for reducing self-reported LBP, which is the most common complaint of patients infected by the HTLV-1 and has a significant impact on their QoL.
Campos de Oliveira et al. (2015)	SF-36 - Brazilian version	PG after training: PF: 93.4± 10.9; PRF: 93.4± 10.9; Pain: 90.3± 12.4; GHS: 87.2± 11.8; VIT: 90.9± 9.8; SRF: 91.6± 8.7; ERF: 95.8± 16.7; MH: 90.2± 12.7.	Two sessions/week, for 1 hour. 12 weeks.	PG participants showed improved posture and increased HRQL scores.
Eyigor et al. (2010)	EORTC QLO-C30 and EORTC QLQ BR23	PG before training: EORTC QLO-C30-Functional: 77.07± 14.96; EORTC QLO-C30 - Symptom: 18.98± 12.18; EORTC QLO-C30-Global: 70.16± 20.58; EORTC QLO-C30 BR 23 functional: 77.81± 16.62 EORTC QLO-C30 BR 23 Symptom: 21.11± 15.28 PG after training: EORTC QLO-C30-Functional: 83.26± 14.70; EORTC QLO-C30 - Symptom: 20.89± 21.49; EORTC QLO-C30-Global: 77.02± 21.81; EORTC QLO-C30 BR 23 functional: 84.39± 10.47; EORTC QLO-C30 BR 23 Symptom: 17.35± 18.20.	Three sessions/week, for 1 hour. Eight weeks.	After the Pilates sessions, QoL scores improved in group 1, and symptom scores decreased.
Gandolfi et al. (2012)	SF-36	PG before training: PF: 67.50± 18.88; PR: 67.50± 39.82; SF: 46.88± 13.37; ER: 65.00± 45.21; GH: 75.50± 9.45; VIT: 68± 21.55; MH: 70.60± 24.36; BP: 51± 6.41; PCS: 65.00± 14.39; ECS: 60.83± 19.47; Total: 64± 13.41. PG after training: PF: 86.25± 0.58; PR: 100.00± 0.00; SF: 42.50± 13.69; ER: 100.00± 0.00; GH: 79.25± 6.34; VIT: 82.50± 14.28; MH: 79.80± 19.31; BP: 50.50± 5.10 PCS: 79.70± 3.83; ECS: 74.10± 8.37; Total: 77.60± 4.86	One session/week, for 50 min. 20 weeks.	The group of women undergoing Pilates showed an improvement in the QoL domains compared to the CG.
García-Soidán et al. (2014)	SF-36	PG before training (M1 - Mean± SE): FC: 77.4± 1.26; PHA: 78.9± 0.86; BP: 77.6± 0.85; GH: 63.3± 0.049; VIT: 52.2± 0.48; SA: 72.7± 0.15; EA: 44.2± 0.21; MH: 59.6± 0.10. PG before training (M1 - Mean± SE): FC: 87.6± 1.16; PHA: 86.6± 0.75; BP: 66.1± 0.90; GH: 81.0± 1.51; VIT: 71.0± 0.12; SA: 85.2± 1.30; EA: 75.3± 8.9; MH: 73.4± 8.9.	Twelve weeks, two times a week, 1 hour per session.	Those in the Pilates group had an increase in QoL, general physical activity and sleep duration, and a decrease in sleep latency.
Karaman et al. (2017)	SF-36	PG before training: PF: 28.8± 13.8; PRL: 11.8± 26.7; Pain: 16.6± 17.5; GH: 69.3± 17.8; VIT: 36.2± 23.0; SF: 56.6± 38.6; ERL: 17.6± 35.6; MH: 47.8± 23.0; MCS: 38.8± 12.0; PCS: 30.9± 3.8; BBS: 36.9± 4.5. PG after training: PF: 67.6± 18.9; PRL: 64.2± 39.5; Pain: 59.1± 25.2; GH: 81.0± 16.8; VIT: 67.1± 20.4; SF: 81.6± 27.6; ERL: 76.5± 40.4; MH: 76.2± 15.8; MCS: 53.6± 10.4; PCS: 44.2± 7.1; BBS: 50.6± 3.9.	Six weeks after the day of hospital discharge.	Pilates-based exercises performed along with standard exercise programs were more effective for improving balance and QoL than standard exercise programs alone.

Continue...

Table 2. Continuation.

Author/Year	Qol Instrument	QOL Result-Score	Evaluation method of pilates practice	Pilates practice results
Kheirkhah et al (2016)	KDOOL SF	<p>PG before training: Health and functioning: Satisfaction:50.4± 15.1; Importance: 48.2± 11.2. Socioeconomic: Satisfaction: 40.2± 14.2; Importance: 50.5± 14.2. Psychospiritual: Satisfaction: 51.8± 12.4; Importance: 50.1± 12.3. Family: Satisfaction: 58.5± 12.2; Importance: 56.5± 13.2. Total QoL: Satisfaction: 48.5± 13.7; Importance: 50.5± 14.1.</p> <p>PG after training: Health and functioning: Satisfaction: 55.8± 13.1; Importance: 53.6± 13.6. Socioeconomic: Satisfaction: 48.9± 13.2; Importance: 58.4± 13.1. Psychospiritual: Satisfaction: 59.6± 13.2; Importance: 60.5± 13.7. Family: Satisfaction: 66.5± 13.2; Importance: 61.5± 13.8. Total QoL: Satisfaction: 60.5± 12.8; Importance: 64.3± 13.6.</p>	Three sessions/week. Eight weeks.	Differences were significant between health and functioning, socioeconomic, psycho-spiritual, and family scores in the Pilates group before and after the intervention.
Kofotolis et al. (2016)	SF-36	<p>PG before training: PF: 51.08± 14.58; RP: BP: 38.51± 12.62; GH: VIT: 44.58± 15.03; RM: 11.32± 4.11. PG after training (post 1): PF: 51.08± 14.58; BP: 79.14± 7.93; GH: VIT: 70.32± 9.58; RM: 3.32± 1.78.</p>	Three sessions/week, for 1 hour; 8 weeks.	An 8-week Pilates program improved HRQOL and reduced functional disability more than a trunk strengthening exercise program or controls among women with chronic low back pain.
Vécseyé Kovách et al. (2013)	WHOOOL	<p>PG before training: Perception: 8.9± 1.4; Autonomy: 15.55± 2.5; Present, past and future: 14.2± 1.8; Sociability: 14.9± 2.15; Death: 10.7± 4.2; Intimacy: 12.55± 4.6. PG after training: Perception: 10.3± 1.7; Autonomy: 14.3± 2.2; Present, past and future: 13.7± 2.2; Sociability: 15.55± 1.9; Death: 10.6± 3.9; Intimacy: 13.1± 3.7.</p>	Three sessions/week, four 1 hour. 6 months.	A 6-month intervention program is an appropriate tool to improve the overall physical performance of healthy, inactive older adults, regardless of the type of exercise concerning Pilates or Aquafitness but might improve only some aspects of QoL.
Küçük et al. (2016)	MusiQoL	<p>PG before training: Total QoL: 28.22± 9.06 PG after training: Total QoL: 23.82± 7.53</p>	Two sessions/week for 45-60 min. Eight weeks.	In addition to QoL, clinical Pilates improved the participants' cognitive functions compared with the traditional exercises.
Küçükçakır et al. (2013)	SF-36	<p>PG before training: PF: 58.3± 20.1; PRL:51.7± 35.9; BP: 42.3± 15.5; SF: 61.5± 18.4; MH:57.3± 16.7; ERL: 60± 34.4; VIT:46.8± 20.7; GH: 42.3± 17.6. PG after training (1 year): PF: 85.3± 14; PRL: 88.3± 26; BP: 70.7± 16.2; SF: 76.1± 15.7; MH: 73.9± 16; ERL: 87.8± 28.3; VIT: 68.3± 18.2; GH: 69.5± 11.8;</p>	Two sessions/week. One year.	Our results showed that Pilates exercises might be a safe and effective treatment alternative relative to the QoL in patients with postmenopausal osteoporosis.
Lim and Park (2019)	SF-36	<p>PG before training adjusted: PF: 865.00± 135.28; RLP: 293.33± 114.27; RLE: 216.67± 98.55; Energy: 207.33± 63.35; EWB: 295.33± 77.31; SF: 125.83± 40.73; Pain: 134.67± 38.82; GH:2.61.67± 87.03; HC: 39.17± 20.43; Total: 2,439.00± 524.88. PG after training adjusted: PF: 916.68± 18.81; RLP: 366.46± 10.57; RLE: 291.81± 8.20; Energy: 274.92± 6.79; EWB: 378.30± 7.40; SF: 164.74± 3.92; Pain: 169.96± 4.94; GH: 343.62± 11.37; HC: 71.40± 2.87; Total: 2,979.88± 44.67.</p>	Three sessions/week, for 1 hour. Eight weeks.	The participants in the Pilates group had an improvement in the SF-36 domains, functional movement, and individual health.
Liposcki et al. (2019)	SF-36	<p>PG before training: FC: 82.2± 15.4; PHA: 61.1± 46.9; PAIN: 67.0± 22.2; GH: 67.8± 22.5; VIT: 63.3± 23.3; SAS: 81.8± 27.3; EA:74.0± 43.4; MH: 72.8± 18.5; General QoL: 70.8± 23.9. PG after training: FC: 91.6± 14.3; PHA: 92.7± 14.8; PAIN: 95.7± 6.9; GH:8.9± 11.2; VIT: 85.5± 13.5; SAS: 97.2± 8.3; EA: 92.6± 22.0; MH: 88.8± 10.5. General QoL: 92.1± 11.2.</p>	Two sessions/week, for 30 min. Six months.	During the study period, there was a significant increase in the QoL of women in the PG (p= 0.00), while the QoL in the CG remained unchanged.
Medeiros et al. (2020)	SF-36	<p>PG T0: RS: 54.2± 21.3; GH: 38.2± 19.2; VIT: 34.6± 17.5; FC: 34.0± 17.1; RP: 23.7± 28.8; EA: 44.4± 46.3; Pain: 33.3± 17.2; MH: 57.5± 21.9</p> <p>PG T12: RS: 54.2± 21.3; GH: 39.0± 23.6; VIT:43.8± 19.5; FC:43.5± 22.0; RP: 36.2± 38.6; EA: 43.6± 43.6; Pain: 44.9± 18.4; MH: 65.9± 27.8.</p>	Two sessions/week. 12 weeks.	The aspects related to QoL only showed improvement in the mat Pilates group (p< 0.05).

Continue...

Table 2. Continuation.

Author/Year	Qol Instrument	QOL Result-Score	Evaluation method of pilates practice	Pilates practice results
Natour et al. (2015)	SF-36	PG before training: PF: 58.75± 23.69; RP: 42.70± 40.69; BP: 42.91± 21.40; GH: 63.66± 23.3; VIT: 56.04± 21.21; SF: 78.64± 28.18; ER: 78.86± 26.97; MH: 67.06± 21.85. PG after training (t45): PF: 63.95± 25.62; RP: 47.37± 40.68; BP: 49.95± 26.79; GH: 62.79± 23.75; VIT: 61.87± 19.27; SF: 83.12± 25.26; ER: 82.20± 25.88; MH: 66.53± 22.97. PG after training (t90): PF: 65.83± 27.96; RP: 49.00± 37.27; BP: 54.45± 23.41; GH: 68.58± 21.92; VIT: 64.58± 21.15; SF: 83.75± 24.51; ER: 80.43± 29.72; MH: 69.30± 21.14. PG after training (t180): PF: 65.41± 28.01; RP: 56.37± 34.77; BP: 52.16± 24.57; GH: 65.20± 22.15; VIT: 60.29± 23.41; SF: 86.04± 22.75; ER: 82.64± 24.18; MH: 67.90± 22.05.	Two sessions/week, for 50 minutes. 12 weeks	Patients with LBP can use the Pilates method to improve pain, function, and QoL (functional capacity, pain, and vitality). Moreover, this method has no harmful effects on such patients.
Odynets et al. (2019)	FACT	PG before training: PWB: 15.33± 0.60; SFWB: 13.08± 0.48; EWB: 12.55± 0.51; FWB: 15.04± 0.45; BCS: 17.84± 0.51; AS: 8.93± 0.50; Total: 82.80± 2.14. PG after training (6 months): PWB: 19.22± 0.67; SFWB: 14.84± 0.53; EWB: 15.20± 0.51; FWB: 18.00± 0.54; BCS: 21.00± 0.48; AS: 11.91± 0.50; Total: 100.17± 2.11. PG after training (12 months): PWB: 23.75± 0.49; SFWB: 15.20± 0.48; EWB: 18.82± 0.29; FWB: 20.46± 0.45; BCS: 26.17± 0.40; AS: 16.48± 0.23; Total: 120.91± 1.26.	Three sessions/week, for one hour. 12 months.	The participants in the Pilates group had an improvement in the FACT: PWB; SFWB; EWB; FWB.
Oliveira, Oliveira, and Pires-Oliveira (2018)	SF-36	PG before training (Median IQR 25th–75th percentiles): PF: 85 (75–95); RP: 100 (88–100); BP: 62 (51–92); GH: 82 (75–90); VIT: 75 (60–83); SF: 75 (75–100); ER: 100 (33–100); MH: 76 (66–86). PG after training (Median IQR 25th–75th percentiles): PF: 95 (78–95); RP: 100 (100–100); BP: 82 (62–100); GH: 82 (77–92); VIT: 85 (75–90); SF: 100 (87–100); ER: 100 (100–100); MH: 84 (78–96).	Three sessions/week, for one hour. 6 months. 78 sessions.	96,1% of participants completed the follow-up. The Pilates was superior ($p < 0.05$) to WBV for muscle strength of the knee flexors at 60 /s (% Change: 16.71± 20.68 vs. 6.18± 19.42; Cohen's $d = 0.70$) and superior ($p < 0.05$) to the control group in all muscular strength variables and in four SF-36 domains.
Oliveira et al. (2019)	SF-12	PG before training: SF-12 - PC: 29.7± 8.4; SF-12 MC: 41.7± 7.3. PG after training: SF-12 - PC: 39.9± 9.0; SF-12 MC: 47.7± 9.7.	Two sessions/week, for 50 min. 12-weeks.	In this study, patients undertaking the Pilates method for 12 weeks had less pain, better function and QoL, and increased range of joint movement.
Özyemişçi Taşkıran et al. (2014)	Turkish version of NHP	Significant differences were found in the total NHP score, mean difference (before and immediately after the intervention) in the PG (0.95± 14.10; $p = 0.007$).	Three sessions/week for 50 minutes. Eight weeks.	Sleep scores (-2.22± 21.57; -6.67± 18.15; 10.00± 22.04 for Pilates, yoga and control groups, respectively; $p = 0.026$) and emotional reaction subdomains (-2.08± 23.19; -6.94± 15.59; 6.82± 14.29 for Pilates, yoga and control groups, respectively; $p = 0.037$) on the NHP decreased immediately after exercise in both groups, and post hoc analyses revealed that the decrease in sleep and emotional reaction scores reached significance only in the yoga group.
Rahimimoghdam et al. (2018)	KDOOL-SF	PG before training: PHCS: 22.1± 12.1; MHCS: 15.3± 13.2; KDCS: 28.5± 12.0; Total QoL: 21.9± 12.4; PG after training: PHCS: 53.8± 11.2; MHCS: 51.5± 14.6; KDCS: 50.6± 13.3; Total QoL: 52± 13.07.	Three sessions/week, for one hour. 12 weeks.	Comparison of the mean differences at the beginning and two months after the study in the two groups showed that the scores related to QOL dimensions in the Pilates group were more significant than in the control group ($p \leq 0.05$).
Rodrigues et al. (2010)	WHOQOL-OLD,	PG before training: QVG: 88.23± 6.19; PG after training: QVG: 89.35± 9.38.	Two sessions/week. Eight weeks	The Pilates method can offer a significant improvement in personal autonomy, static Balance, and QoL.

Continue...

Table 2. Continuation.

Author/Year	Qol Instrument	QOL Result-Score	Evaluation method of pilates practice	Pilates practice results
Saltan and Ankarali (2021)	NHP	PG before training: 114.21± 74.78. PG after training: 72.55± 65.01 (p= 0.000); PG difference After training after Tukey's post hoc test: -41.65± 50.06.	Three sessions/ weeks. 12 weeks.	A positive effect was found on the pain, physiological status, and QoL in the PG.
Surbala Devi et al. (2013)	SS-QOL	PG before training: 312.25± 11.8. PG after training: 326.42± 11.5.	Three sessions/ week, for 45 minutes per session. Eight weeks.	FRT (p= 0.000 in both groups), TUG (p= 0.000: Pilates and p= 0.001: Control), DGI (p= 0.000 in both groups) showed highly significant differences before and after eight weeks of intervention.
Surbala Devi et al. (2014)	RAND-36	PG before training: 63.9± 3.0. PG after training: 82.6± 2.1.	Three sessions/ week, for 45 minutes 6 weeks.	The PG was shown to have more significant improvements in QoL compared to CBT and CG.
Vancini et al. (2017)	The SF-36, translated and validated for Brazilian Portuguese.	PG before training: FC: 70.2± 17.2; LBPA: 65.5± 33.0; Pain: 64.7± 20.4; GH: 75.3± 14.0; VIT: 47.4± 22.7; SF: 57.7± 28.9; LBEP: 46.0± 40.0; MH: 60.0± 19.3. PG after training: FC: 75.5± 17.0; LBPA: 76.2± 34.9; Pain: 75.0± 23.7; GH: 80.5± 9.9; VIT: 65.9± 18.7; SF: 81.5± 24.9; LBEP: 77.8± 33.9; MH: 74.1± 22.4.	Three sessions/week for 60 minutes. Eight weeks.	The HR during the physical training sessions was significantly lower in the Pilates group (P) when compared to the walking group (W) (p< 0.0001).
Yentür et al. (2021)	Turkish version of the RAQoL	PG before training: 6.20± 4.58; Aerobic group before training: 6.80± 4.80; Combined before training: 8.70± 5.20. PG after training: 1.50± 0.30; Aerobic group before training: 1.60± 0.45; Combined group after training: 2.80± 0.71.	Three sessions/ week, for about 45 min per session.	The present study showed significant improvements for the Pilates group in fatigue, depression, aerobic capacity, QoL (p< 0.05).
Yuca and Omer (2018)	SF-36	PG before training: Pain (3.00± 4.00), Fatigue (5.00± 2.00); SF-36 PH (40.0± 3.0); SF-36 MH: (29.00± 5.00). PG after training: Pain (2.00± 2.0), fatigue (4.00± 1.00); SF-36 PH: (41.00± 4.00); SF-36 MH: (35.00± 3.00).	Three sessions/ week, for 45 minutes. 12 weeks.	Pilates affect the parameters of QoL in women with type 2 diabetes, and they might be recommended as a part of their treatment program.
Yun et al. (2017)	SS-QOL	PG before training: Physical: 3.08± 0.54; Social: 2.70± 0.66; Psychological: 2.85± 0.42; Total QoL: 2.88± 0.47. PG after training: Physical: 3.32± 0.64; Social: 3.08± 0.66; Psychological: 3.23± 0.64; Total QoL: 3.23± 0.56.	Two sessions/week, for 1 hour .12 weeks.	Pilates sessions improved patients in the experimental group in all domains of QOL.

AS: Arm subscale; ASQOL: ankylosing spondylitis quality of life questionnaire; BASFI: Bath Ankylosing Spondylitis Functional Index; BASMI: Bath Ankylosing Spondylitis Metrology Index; BASDAI: Bath Ankylosing Spondylitis Disease Activity Index; BBS: Berg Balance Score; BCS: Breast cancer subscale; BP: Bodily pain; BSA: Body self-analysis; CBT: Conventional Balance Training; CG: Control Group; CKDS: Chronic Kidney Diseases Summar; DGI - Dynamic gait index; DS: Diet Satisfaction; DA: Daily Activities; EA: Emotional Aspects; ECS: Emotional component summary; EMH: Emotional/ Mental Health; EORTC QLQ-C30 (EORTC QLQ BR23): The European Organization for Research and Treatment of Cancer Questionnaire; ER: Emotional Role; ERF: emotional role functioning; ERL: emotional role limitation; ESSA: Emotional situation self-analysis; EWB: Emotional well-being ; FACT: Functional Assessment of Cancer Therapy; FACT-B: Functional Assessment of Cancer Therapy-Breast; FC: Functional Capacity ; FG: Factor-G (PWB + SFWB + EWB + FWB); FIC: Fibromyalgia Impact Questionnaire; FRT - Functional reach test; FW: Financial Worries; FWB: Functional well-being ; GH: General Health; GHP: General Health Perception; GHS: general health state; HC: Health change; HSA: Health self-analysis; HT: health changing over time or the reported health transition; HW: House Work; KDQOL-SF: The Quality of Life Short Form; LBEP: limitations because emotional problems; LBOEM: limitations because of emotional problems; LBPA: limitations because of physical aspects; MCS: Mental component summary; MF: Mental Functions; MH: Mental Health; MHCS: Mental Health Components Summary ; MHD: Mental Health Domain; MP: Mat Pilates; MusiQoL: The Multiple Sclerosis International Quality of Life Questionnaire; NHP: Nottingham health profile; OMSA: Overall motility self-analysis; PCS: Physical component summary; PE: Physical Endurance; PedsQL 4.0 : Pediatric Quality of Life Inventory version 4.0; PF: Physical functioning; PG: Pilates Group; PH: Physical Health; PHA: Physical Aspects; PHCS: Physical Health Components Summary; PI: Pain intensity; PPFA: past-present-future activities; PR: Physical Role; PSCS: psychosocial; PRF: physical role functioning ; PWB: Physical well-being; QoL: Quality of Life; QOLID: Questionnaire for Quality of Life; QVG: quality of life index; RAND-36: The RAND 36-Item Health Survey ; RAQoL: Rheumatoid Arthritis Quality of Life Questionnaire; RLE: Role limitation due to emotional problems ; RLP: Role limitation due to physical health; RM: Roland Morris ; RP: Role-physical ; RS: Role Social; RT: Resistance Training; SA: Social Aspects; SAS: Social Aspects; SB: Symptom irritability; SF: Sensory functioning ; SF-12-MC: 12-Item Short-Form Health Survey—Mental Component; SF-12-PC: 12-Item Short-Form Health Survey—Physical Component ; SF-36: Medical Outcomes Study 36-Item Short-Form Health Survey; SFWB: Social or family well-being; SI: Self Image; SLSA: Stress levels self-analysis; SP: Social Participation; SRF: social role functioning; SRS-22r: Scoliosis Research Society Questionnaire; SS- QOL: Stroke specific quality of life; TOIS: Trial Outcome Index score (PWB + FWB + BCS); TS: Total score (Factor-G + BCS); TUG - Timed up and go test; VIT: Vitality; WHOQOL: The World Health Organization quality of Life questionnaire; WHOQOL-OLD: The World Health Organization quality of Life questionnaire – Old.

Table 3. Outcomes of the included studies.

Author/Year	Statistical tests used	Outcomes	
		Main results	Is pilates practice related to better QoL?
Altan et al. (2009)	Shapiro–Wilk test. Wilcoxon test. T-test and Mann–Whitney U test. χ^2 test and Fischer's exact test.	In PG, BASFI showed significant improvement at week 12 ($P= 0.031$) and week 24 ($P= 0.007$) (post-treatment), BASMI, BASDAI, and chest expansion showed significant improvement ($P= 0.005$, $P= 0.036$, $P= 0.002$), while there was no significant change for ASQoL at week 12. According to the results, Pilates is an effective and safe method to improve physical capacity in patients with ankylosing spondylitis.	YES. ASQoL.
Angrin et al. (2015)	Mann-Whitney-U test	BMD values increased in the Pilates group ($p < 0.05$), while BMD decreased in the control group ($p < 0.05$). Physical performance test results showed significant increases in the Pilates group ($p < 0.05$), whereas there were no changes in the control group ($p > 0.05$). The pain intensity level in the Pilates group was significantly decreased after the exercise ($p < 0.05$), while it was unchanged in the control group. There were significant increases in all parameters of QoL in the Pilates group.	YES. All parameters of QoL in the Pilates group.
Borges et al. (2014)	T-test.	The results provide evidence of positive effects on pain intensity and almost all domains of QoL when patients followed the Pilates exercise program described.	YES. PF; PRF; BP; VIT; GH; SRF; MH.
Campos de Oliveira et al. (2015)	Mean and standard deviation. Mann-Whitney U test. Shapiro-Wilk test. Two-way repeated-measures analysis of variance (ANOVA). Tukey's post hoc test. Kruskal-Wallis test and the Student-Newman-Keuls	EG showed significant improvements in all subscales after the intervention. However, CG showed improvement only in social role functioning. Pilates exercises improved isokinetic torque of the knee extensors and flexors, postural balance, and HRQoL.	YES. PF; PRF; Pain; GHS; VIT; SRF; ERF; MH.
Eyigor et al. (2010)	Descriptive statistics. The Mann-Whitney U Test. Fisher's Exact or χ^2 . Wilcoxon test.	After the exercise program, improvements were seen in Group 1 in the 6-minute walk test, BDI, EORTC QLQ-C30 functional, and EORTC QLQC30 BR23 functional scores ($P < 0.05$). In contrast, no improvement was observed in Group 2 after exercise. Pilates exercises are effective and safe for female breast cancer patients.	YES: EORTC QLQ-C30-Functional; EORTC QLQ-C30-Symptom; EORTC QLQ-C30-Global; EORTC QLQ-C30 BR 23 functional; EORTC QLQ-C30 BR 23 Symptom.
Gandolfi et al. (2012)	Mean and standard deviation calculations for quantitative variables and frequency and percentages for qualitative variables. Shapiro-Wilk test. T-Student test. χ^2 test. ANOVA time-repeated measurements. Tukey test..	The PG presented improvement in the QoL evaluation scores: PF, and PCS; PF; PR; ER, VIT, PCS and ECS, but without changes in bone remodelling.	YES. PF; PCS; PR; ER; VIT; ECS.
García-Soidán et al. (2014)	Kolmogorov-Smirnov test; Two-way analysis of variance (ANOVA), with Fisher's distribution.	NR	The results showed that the Pilates Method generated important changes in middle-aged individuals, bringing benefits to the domains of QoL
Karaman et al. (2017)	Descriptive statistics as a mean \pm standard deviation; Shapiro-Wilk test; t-test	We found a significant difference in balance and QoL with a 6-week postoperative Pilates-based exercise program combined with standard exercise compared to standard exercise alone following TKA surgery.	YES. GH; SFD, and mental component.

Continue...

Table 3. Continuation.

Author/Year	Statistical tests used	Outcomes	
		Main results	Is pilates practice related to better QoL?
Kheirkhah et al. (2016)	χ^2 test, independent t-test, and paired t-test.	According to the results of the study, Pilates exercise can be considered an effective alternative to improve the quality of life, health, socioeconomic, psycho-spiritual, and family functioning of hemodialysis patients. In the control group, no difference was observed between the QoL scores at the beginning and at the end of the study.	YES. HEALTH AND SOCIOECONOMIC. PSYCHO-SPIRITUAL. FAMILY. TOTAL QoL.
Kofotolis et al. (2016)	Kolmogorov-Smirnov test; MANOVA; Mauchly's test; F test.	An 8-week Pilates program improved HRQoL and reduced functional disability more than a trunk strengthening exercise program or controls among women with chronic low back pain.	YES. Autonomy and perception.
Vécseyiné Kovách et al. (2013)	T- test; ANOVA.	WHOOOL showed improvement in perception and autonomy in the Pilates group.	YES. Perception and autonomy.
Küçük et al. (2016)	Descriptive statistics. Wilcoxon test. Mann-Whitney U test.	The present study results showed that individuals in the Pilates group had significantly positive effects on QoL and cognitive functions compared to the control group. Showing that the use of Pilates for patients with multiple sclerosis can be beneficial.	YES. Total QoL.
Lim and Park (2019)	Analysis of variance (ANOVA). Scheffé test. Adjusted for: Health condition, role limitation due to physical health, role limitation due to emotional problems and energy.	When comparing pre- and post-exercise, we found a statistically significant difference between the three groups in FMS (F [2.89]= 15.56, P< 0.001), and there was an improvement in the SF-36 domains in the Pilates Group (F [2.89]= 52.36, P< 0.001). The Pilates group presented better results in functional movement and individual health levels when compared to the Yoga and control groups.	YES. PF; RLP; RUE; ENERGY; EWB; SF; PAIN; GH; HC; SF-36 Total.
Liposcki et al. (2019)	Attendance and percentage for qualitative variables, and means, standard deviation, minimum and maximum values for quantitative variables. Shapiro-Wilk test. The Student's T-test, Mann-Whitney U test.	After the exercise program, 89% of the women in the PG had an excellent QoL, while in the CG, 46% of the women in the CG considered their QoL to be bad or poor. The results of this study showed that Pilates could improve the QoL of sedentary elderly women	YES. General QoL. FC; PHA; PAIN; GH; VIT; SAS; EA; MH.
Medeiros et al. (2020)	Kolmogorov-Smirnov test. Levene test. ANOVA mixed model. Bonferroni post-hoc test.	There was an improvement in both groups concerning pain and function (p< 0.05). The QoL domains and the FABQ questionnaire showed improvements in PG. PSQI and PRCTS showed improvements only in the aquatic aerobic exercise group (p< 0.05). Significant improvements were observed in the two groups in relation to the disease symptoms, and no differences were observed between mat Pilates and aquatic aerobic exercise in any of the measured variables.	YES. RS; GH; VIT; FC; RP; EA; Pain; MH.
Natour et al. (2015)	Student's t-test (parametric variables) and Mann-Whitney (non-parametric variables); ANOVA; comparisons test (Post Hoc).	Statistical differences favoring the Pilates Group were found with regard to pain (P< 0.001), function (P< 0.001) and the QoL domains of FC (P< 0.046), pain (P< 0.010) and VIT (P< 0.029). Statistical differences were also found between groups regarding the use of pain medication at T45, T90, and T180 (P< 0.010), with the EG taking fewer NSAIDs than the CG.	YES. FC, PAIN, and VIT.
Odynets et al. (2019)	Shapiro-Wilk test; t-test.	The Pilates group showed better functional (20.65± 0.61) when compared to yoga and water activities.	YES. PWB; SFWB; EWB; FWB

Continue...

Table 3. Continuation.

Author/Year	Statistical tests used	Outcomes	
		Main results	Is pilates practice related to better QoL?
Oliveira et al. (2019)	Kolmogorov-Smirnov normality test was performed for quantitative variables; Shapiro-Wilk normality test for quantitative variables; Student's t-test for paired samples.	The Pilates group presented lower VAS ($P < 0.001$), lower HIAQ scores ($P < 0.001$), and higher QoL scores ($P < 0.001$) compared with the control group. We found statistically significant results for the Pilates group in the range of movement for the shoulder, knee, ankle, and lumbar spine ($P < 0.001$). In the intragroup analysis, there was a significant improvement in all outcomes evaluated.	YES. QoL Scores.
Oliveira et al. (2018)	Initially, intention-to-treat analysis (ITT). Mean and standard deviation (SD), respective interquartile range (25th and 75th percentiles). Shapiro-Wilk test. The Student t-test. Levene test. One-way ANOVA. Kruskal-Wallis test. Covariance analysis (ANCOVA). As a post hoc, the Bonferroni test.	Pilates is an alternative intervention superior to WBV when the goal is linked to the strength of the knee flexor muscles.	YES. RP; BP; SF; ER.
Rahimimoghadam et al. (2018)	Kolmogorov-Smirnov, Mann-Whitney U, and Wilcoxon tests	The Pilates exercises effectively improved the participants' QoL and its dimensions. Due to the cost-effectiveness and safety of this intervention, we propose the inclusion of this exercise in CKD patients' treatment protocols	YES. PCS, MCS, and KDCCS
Rodrigues et al. (2010)	Shapiro Wilk test; t-test.	Based on this study, it is possible to conclude that the practice of the Pilates method can improve the functional autonomy and static balance of elderly individuals. However, concerning QoL, we suggest that further studies be carried out using a more representative sample and a more extended period of intervention to more precisely evaluate the results of the method with respect to this variable.	YES. Sensorial abilities; social participation; privacy.
Saitan and Ankarali (2021)	Mean \pm standard deviation, and as frequencies (counts and percentages). Kolmogorov-Smirnov test. One-way analysis of variance. Post hoc Tukey test. Pearson's χ^2 test. Paired-samples t-test.	After the intervention, there was a significant reduction in the training groups for VAS, NHP, WHr, and BDI values ($P < 0.05$). Also, there were no significant decreases in the control group's VAS, NHP, WHr, and BDI values. When the three groups of BMI, VAS, ODI, NHP, and BDI values changed after training were compared, they were found significantly different. A post hoc Tukey test showed that the control group was significantly different from the other two groups ($P < 0.05$)	YES. NHP.
Surbala Devi et al. (2013)	Kolmogorov-Smirnov test; Mean and standard deviation; student t-test;	There was significant improvement ($p < 0.05$) in functional balance and QoL of sub-acute Stroke subjects in the Pilates group compared to the Control group after eight weeks of training.	YES. General QoL.
Surbala Devi et al. (2014)	Mean and standard deviation. Kolmogorov-Smirnov test. Repeated measure ANOVA. Student's t-test.	The 6-week PG and CBT program resulted in significant improvements in functional balance (FRT, TUG & DGI: $P = 0.000$) and QoL (RAND-36: $P = 0.000$). Both PG and CBT can improve functional balance and decrease the propensity for falls in the elderly, thus improving QoL. However, the PG was considered superior in elderly outpatients.	YES. RAND-36

Continue...

Table 3. Continuation.

Author/Year	Statistical tests used	Outcomes	
		Main results	Is pilates practice related to better QoL?
Özyemişçi Taşkıran et al. (2014)	Shapiro-Wilk test. ANOVA or Kruskal-Wallis. Post hoc analyses (Tukey or Mann Whitney U test, respectively), Wilcoxon or paired-T tests.	No improvement was seen in balance scores immediately after the intervention in either group. Improvements were seen in chair stand and 8-foot up, and test scores did not reach statistical significance after the interventions ($p= 0.074$ and $p= 0.083$, respectively). These effects also did not persist after six months. Reduction in pain, depression or disability and improvements in balance or body composition were not observed.	NO.
Vancini et al. (2017)	Levene's test, mean± standard; Unilateral analysis of variance; Newman-Keuls post hoc test.	QoL, depression, and trait anxiety scores improved in the Pilates group. However, there was no better result in anxiety-state scores in this group.	YES. VIT; SFD; LBOEM; MH.
Yentür et al. (2021)	Shapiro-Wilk test, histograms, probability plots. One-way ANOVA; Kruskal-Wallis test; paired sample t-test; Wilcoxon signed ranks test.	Pilates Method can lead to beneficial effects similar to those of aerobic exercise in patients with Rheumatoid Arthritis.	YES. GENERAL QUALITY OF LIFE.
Yucel and Omer (2018)	Kolmogorov-Smirnov test. t-test.	Pilates affect the parameters of QoL in women with type 2 diabetes, and they might be recommended as a part of their treatment program.	YES. Pain, fatigue, MH; anxiety, depression, FBG; and GHV.
Yun et al. (2017)	Shapiro-Wilk test. T-test.	The practice of Pilates by stroke patients positively affected the QoL of this population. It was found through the results a statistically significant improvement in the physical, social and psychological areas and total QoL.	YES. Physical, social, psychological, and total QoL.

10mW: 10-meter walk ; ASQoL: ankylosing spondylitis quality of life questionnaire ; BASDAI: Bath Ankylosing Spondylitis Disease Activity Index ; BASFI: Bath Ankylosing Spondylitis Functional Index ; BASMI: Bath Ankylosing Spondylitis Metrology Index ; BCS: Breast cancer subscale; BDI: Beck Depression Inventory ; BMI: Body Mass Index; BP: Bodily Pain ; CG: Control Group ; DS: Diet Satisfaction ; EA: Emotional Aspects; ECS: Emotional component summary; EMH: Emotional/Mental Health; EORTC QLQ-C30 (EORTC QLQ BR23): The European Organization for Research and Treatment of Cancer Questionnaire ; ER: Emotional Role; ERF: emotional role functioning ; EWB: Emotional well-being; FBG: fasting blood glucose; FC: Functional Capacity; FG: Factor-G (PWB + SFWB + EWB + FWB); FMS: Functional Movement Screen ; FW: Financial Worries; FWB: Functional well-being; GE: Experimental Group; GH: General Health; GHS: general health state; GHV: glycosylated hemoglobin values; GPA: General physical activity; HC: Health change; HT: Health Changes over time or the reported health transition; KDCS: Kidney Diseases Components; LBOEM: limitations because of emotional problems; MCS: Mental Component Summary; MH: Mental Health; NHP: Nottingham health profile; NR: Not Related; ODI: Oswestry Disability Index; PCS: Physical Health Components; PE: Physical Endurance; PF: Physical Function; PFC: physical functional capacity; PG: Pilates Group; PH: Physical Health; PHA: Physical Aspects; PPFA: past-present-future activities; PRF: physical role functioning; PR: Physical Role; PTTs: Putting on and taking off a t-shirt; PWB: Physical well-being; QoL: Quality of Life; RE: Role Emotional; RLE: Role limitation due to emotional problems; RLP: Role limitation due to physical health; RP: Role Physical; RSP: Rising from a sitting position; RVDP: Rising from a ventral decubitus position; SA: Social Aspects; SB: Symptom irritability; SF: Social Function; SF - 36: Medical Outcomes Study 36-Item Short-Form Health Survey; SFD: Social Functioning Domain; SFWB: Social or family well-being; SRF: social role functioning; TKA: Total knee arthroplasty; TOIS: Trial Outcome Index score (PWB + FWB + BCS); TS: Total score (Factor-G + BCS); VAS: Visual Analogue Scale; VIT: Vitality; WHr: Waist/hip ratio.

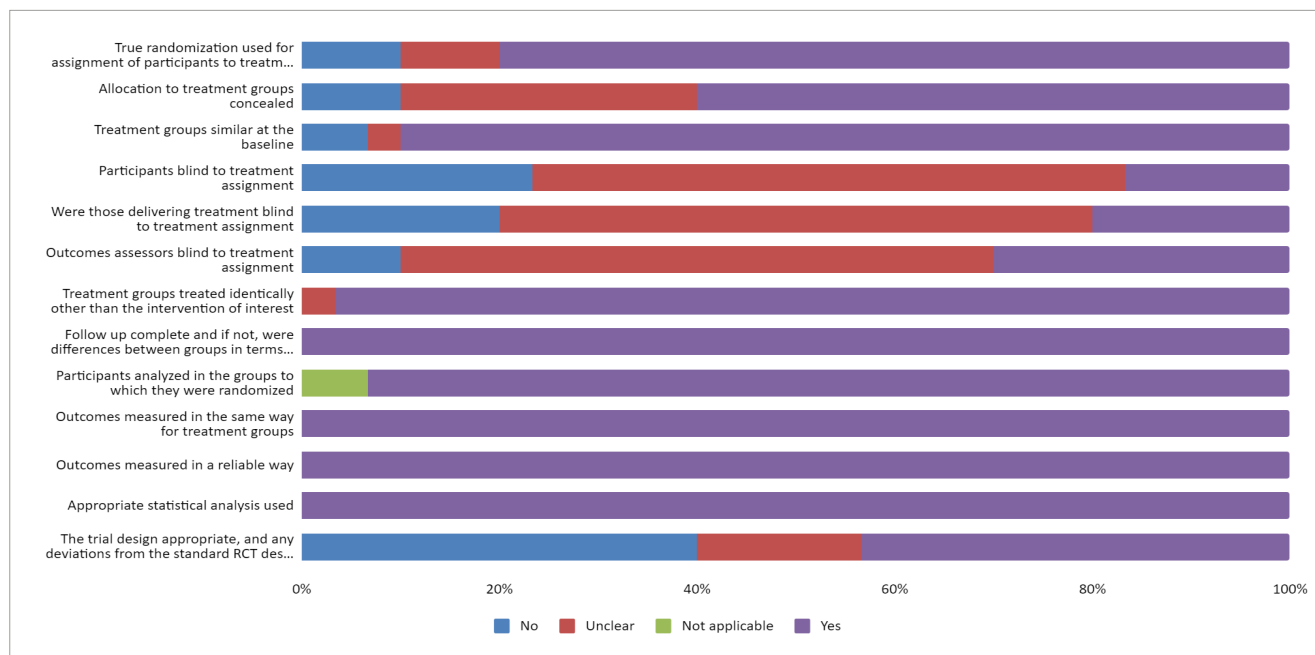


Figure 2. Assessment of the risk of bias in experimental studies (JBI Critical Appraisal Checklist).

by Brazilian and Turkish authors. Despite numerous PM practitioners in Brazil, publications on the subject are still considered incipient, with great potential for development and new records on the benefits of the technique (Macedo, Haas, & Goellner, 2015).

General characteristics of the sample and overview of the methodological aspects of the selected studies

The 30 studies selected for this systematic review demonstrated the practice of PM in individuals of both sexes, different age groups, distributed in different countries, and with different clinical conditions. It is noteworthy that it was not possible to stratify the selective age group categories since most of the selected articles worked with a wide range of ages, from the age of eighteen (García-Soidán, Arufe Giraldez, Cachón Zagalaz, & Lara-Sánchez, 2014).

The heterogeneity regarding the aetiology of the clinical conditions found in the researched studies, which involved people with neurological, endocrine, orthopedic, and oncological pathologies, may be related to PM being considered an eclectic activity with minimal contraindications related to its practice. Many individuals prevented from participating in other regular exercise programs due to certain physical and functional limitations find an open way to practice such a method that is gaining new adherents every passing day (Mallery et al., 2003; Amorim, Sousa, & Santos, 2011; Macedo et al., 2015).

Assessing QoL is always challenging for the researcher, as it comprises a series of factors with individual, subjective, and non-transferable characteristics. In this sense, the methodologies employed seek to incorporate, in the best possible way, instruments that can assess people's opinions, thus improving health-related clinical practices. In this review, SF - 36 was the most used questionnaire (43.3%) among the selected studies, possibly due to its versatility, dynamism, validation, and ease of application, in addition to having been translated to over forty languages.

Aspects related to improving the QoL of PM practitioners among the selected studies

Among the studies selected in this review, the main aspects related to QoL improvement with the practice of PM were pain relief and mental health and functional capacity improvement.

To recall the concepts, functional capacity (FC) can be defined as the ability to perform basic activities of daily living (ADL) and instrumental activities of daily living (IADL), linked to the individual's quality of life once it determines their independence, self-care, and their social participation, and is considered an essential marker of the individual's clinical situation (Yentür, Ataş, Öztürk, & Oskay, 2021).

On the other hand, mental health was defined by the WHO as the feeling of well-being in which the individual develops their personal skills, manages to deal with the stress

of life, works productively, and can contribute to their community (WHO, 1997).

According to Lopes et al. (2019), the practice of PM because it involves exercises that combine physical well-being with mental health through stretching and muscle strengthening, improves body functionality, and becomes an essential tool for reducing drug use and other analgesic therapies, contributing to mental health improvement.

The PM provides its practitioners with global benefits, evidencing increased flexibility, range of motion, body awareness, decreased pain, improved posture, and aid in treating depression, anxiety, and stress. To achieve the intended objectives, it is necessary to correctly apply the technique keeping its main pillars intact: fluidity, concentration, coordination, centralization, breathing, and precision during the execution of movements (Bezerra et al., 2020).

Improved QoL in PM practitioners compared to non-practitioners

Pilates Method has been classified as a safe and effective method to improve the functional capacity of people diagnosed with ankylosing spondylitis. It is known that functional capacity gradually affects patients affected by ankylosing spondylitis since this pathology affects peripheral joints and the spine, causing pain and movement limitation. Altan, Korkmaz, Bingol, and Gunay (2009) conducted a study with 55 participants with ankylosing spondylitis, aged between 28 and 69 years, 30 males and 25 females. By dividing the participants into an experimental group (submitted to PM practice) and a control group (not submitted to PM practice), they found a significant improvement ($P= 0.003$) in the functional capacity of the individuals who practiced Pilates, with pain relief and greater independence to perform ADLs.

Corroborating Altan et al. (2009), Natour et al. (2015), when carrying out a randomized clinical trial with sixty patients of both sexes, aged between 18 and 50 years, with a diagnosis of non-specific chronic low back pain for at least twelve months, found a significant improvement in pain levels ($p < 0.01$) in the experimental group (performing PM) compared to the control group (no intervention). The groups were formed by thirty participants each; in both, the volunteers were making use of non-steroidal anti-inflammatory drugs. After 180 days, the study concluded that PM is an important ally in chronic low back pain of non-specific origin, contributing to reducing medication use in patients. Improvement was assessed using the visual analogue pain scale (VAS). Pilates Method utilizes exercises aiming at strengthening the spinal stabilizing muscles, a region called

by Joseph Pilates as the centre of force or powerhouse, promoting pain relief at rest and during gait.

Pilates Method is effective for several factors related to mobility and flexibility of the spine, correction of postural alignment, improvement of balance, reduction of pain in chronic low back pain, and improvement in health in general (Macedo et al., 2015).

It is noteworthy that regular PM practice potentializes previous directions given by doctors according to the patients' needs, limited by their necessities, with a special focus on aerobic exercises, nutritional assessment, and lung expansion activities (Ince, Sarpel, Durgun, & Erdogan, 2016).

Joseph Pilates, the creator of the method, advocated that the body should always be worked in its entirety, using exercises that promote stretching and strengthening of the musculature, centring the production of force in the abdominal region, which he called the centre of force. This factor contributes to a better functional autonomy of its practitioners, regardless of age or clinical condition (Yentür et al., 2021).

The recovery of bone mineral density in patients diagnosed with osteoporosis is of paramount importance, given that this pathology is associated with numerous cases of hip fractures, considered a public health problem and an economic impact associated with hospitalizations and deaths. In another study of this review, following a group of 42 postmenopausal women aged between 40 and 69 years diagnosed with osteoporosis, Angin, Erden, and Can (2015) divided them into two groups, one with the intervention of PM and a control group, which did not perform any activity. As a result, after 24 weeks, they found a significant improvement in the functional capacity associated with recovery in bone mineral density in the hip region and pain reduction in the group that practised PM ($p < 0, 05$) with a weekly frequency of three days.

Pilates Method stimulates the body's superficial and deep musculature through concentric, eccentric, and isometric exercises, thus transmitting a stimulus to the skeletal system, favouring the remodelling of bone mineral tissue (Angin et al., 2015).

As for cerebrovascular accident (CVA), in studies carried out in India by Surbala Devi, Ratan, Gopal, and Satani (2013) and another one carried out in Korea by Yun, Park, and Lim (2017), with 20 and 40 patients of both genders, respectively, the importance of PM in the quality of life of these individuals was demonstrated. The first, consisting of an 8-week-long intervention with three weekly sessions, showed a significant improvement in functional balance, leading to an improvement in general health compared to the control group (without activities) in the domains of the

SS-QOL questionnaire. The second mentioned study adopted a 12-week-long intervention schedule with two weekly sessions and showed significant improvements in the physiological, psychosocial, physical, and quality of life parameters of the previously mentioned questionnaire.

Exercises performed with PM can help individuals with CVA to improve tone and muscle deficits, as well as postural control through individualized activities to meet each patient's profile and their respective sequelae (Surbala Devi et al., 2013).

Balance impairment is an important dysfunction factor to consider after having a stroke, as the risk of falls is high during the first year post-injury. In turn, falls can favour injuries of different severity, highlighting that femoral fracture is considered a public health problem (Yun et al., 2017).

Influence of PM on QoL compared to other activities

Aiming to evaluate PM and yoga's influence on QoL and practitioners' functionality, Lim and Park (2015) selected 90 individuals aged between 30 and 40 years in South Korea. The selection involved 30 individuals who were beginners in PM, 30 beginners in yoga, and another 30 individuals for the control group (who did not practice any physical activities). The sample consisted of individuals of both sexes. The result showed that, among the evaluated techniques, PM is more effective in improving general health, emotional well-being, and pain, showing a significant difference compared to yoga and the control group. In the authors' view, the results may be related to the fact that PM integrates dynamic and varied body movements that require balance, stability, and mobility, allied to the methodology applied in its execution, while yoga focuses more on static exercises.

Pilates Method was also more effective than the vibrating platform in improving the QoL and torque curve of the knee flexor muscles in postmenopausal women. This evidence was obtained during a randomized controlled study carried out by Oliveira et al. (2019), in which 51 women participated, divided into a control group ($n=17$), vibrating platform activity group $n=17$, and PM group ($n=17$). With these results, the authors believe combining the two methods can bring even better benefits than both used separately.

In a study carried out in Turkey with individuals of both sexes diagnosed with multiple sclerosis, Kuçuk, Kara, Poyraz, and İdiman (2016) showed, after 8 weeks of intervention with PM, significant improvements attributed to aspects related to ambulation, respiratory capacity, cognitive ability, and in all the domains attributed to QoL when compared to individuals belonging to the control group who performed

conventional patterns of rehabilitation aimed at patients with multiple sclerosis.

Pilates Method practice in the selected studies varied between once, twice, and three times a week, with the last alternative being the most observed frequency. In addition, the average session duration was 50 minutes, and the number of sessions estimated as a research protocol in the studies ranged between eight and twelve weeks, predominantly.

Among the limitations found in this study, the lack of information in the results of some evaluated articles regarding the specificity of the domains that were successful with the practice of PM is noteworthy. However, despite these limiting factors, it is possible to consider that the compilation of information on aspects related to QoL in a systematic review study can be a first step for improving the methodological quality of studies on this topic and also another instrument for the professionals involved in the prescription of this exercise modality to base their professional practices.

CONCLUSION

From the articles observed in the present systematic review, it was possible to conclude that PM positively influences the QoL of practitioners in both sexes, different age groups, and with different clinical conditions. The main domains related to QoL improvement were functional capacity, pain relief, and mental health improvement.

ACKNOWLEDGMENTS

To the Postgraduate Program in Physical Education (PPGEFI / UFV) and the Universidade Federal de Viçosa.

REFERENCES

- Aguiar, G. O., Figueiredo, R. C., Quaresma, J. S. R., Passos, R. P., Fileni, C. H. P., Martins, G. C., Sílio, L. F., Oliveira, J. R. L., Camargo, L. B., Almeida, K. S., Vilela Junior, G., & Lima, B. N. (2021). Efeitos do treinamento resistido (Tr) na qualidade de vida (Qv) de idosos: revisão bibliográfica. *Revista CPAQV – Centro de Pesquisas Avançadas em Qualidade de Vida*, 13(1), 1-7.
- Altan, L., Korkmaz, N., Bingol, Ü., & Gunay, B. (2009). Effect of pilates training on people with fibromyalgia syndrome: a pilot study. *Archives of Physical Medicine and Rehabilitation*, 90(12), 1983-1988. <https://doi.org/10.1016/j.apmr.2009.06.021>
- Amorim, T. P., Sousa, F. M., & Santos, J. A. R. (2011). Influence of Pilates training on muscular strength and flexibility in dancers. *Motriz: Revista de Educação Física*, 17(4), 660-6. <https://doi.org/10.1590/S1980-65742011000400010>
- Angin, E., Erden, Z., & Can, F. (2015). The effects of clinical pilates exercises on bone mineral density, physical performance and quality of life of women with postmenopausal osteoporosis. *Journal of Back and Musculoskeletal Rehabilitation*, 28(4), 849-858. <https://doi.org/10.3233/BMR-150604>

- Araújo, A. M. & Bós, J. A. G. (2017). Qualidade de vida da pessoa idosa conforme nível de institucionalização. *Estudos Interdisciplinares sobre o Envelhecimento*, 22(3), 137-162. <https://doi.org/10.22456/2316-2171.60224>
- Bezerra, S. D. O., Araújo, É. M., Elizabeth, A., & Araújo, O. (2020). Benefits of the Pilates method in health. *Revista de Saúde*, 7(1), 5-13.
- Borges, J., Fontes Baptista, A., Santana, N., Souza, I., Kruschewsky, R. A., Galvão-Castro, B., & Sá, K. N. (2014). Pilates exercises improve low back pain and quality of life in patients with HTLV-1 virus: A randomized crossover clinical trial. *Journal of Bodywork and Movement Therapies*, 18(1), 68-74. <https://doi.org/10.1016/j.jbmt.2013.05.010>
- Campos De Oliveira, L., Gonçalves De Oliveira, R., & De Almeida Pires-Oliveira, A. (2015). Effects of Pilates on muscle strength, postural balance and quality of life of older adults: a randomized, controlled, clinical trial. *The Journal of Physical Therapy Science*, 27(3), 871-876. <https://doi.org/10.1589/jpts.27.871>
- Cordeiro, B. L. B., Fortunato, I. H., Lima, F. F., Santos, R. S., Costa, M. C., Brito, A. F. (2020). Influence of the Pilates method on quality of life and pain of individuals with fibromyalgia: integrative review. *BrJP*, 3(3), 258-262. <https://doi.org/10.5935/2595-0118.20200049>
- Eyigor, S., Karapolat, H., Yesil, H., Uslu, R., & Durmaz, B. (2010). Effects of pilates exercises on functional capacity, flexibility, fatigue, depression and quality of life in female breast cancer patients: a randomized controlled study. *European Journal of Physical and Rehabilitation Medicine*, 46(4), 481-487.
- Gandolfi, N. R. S., Corrente, J. E., De Vitta, A., Gollino, L., & Mazeto, G. M. F. da S. (2012). The influence of the Pilates method on quality of life and bone remodelling in older women: a controlled study. *Quality Life Research*, 29(2), 381-389.
- García-Soidán, J. L., Arufe Giraldez, V., Cachón Zagalaz, J., & Lara-Sánchez, A. J. (2014). Does pilates exercise increase physical activity, quality of life, latency, and sleep quantity in middle-aged people? *Perceptual and Motor Skills*, 119(3), 838-850. <https://doi.org/10.2466/29.25.PMS.119c30z9>
- Impellizzeri, F. M., Bizzini, M. (2012). Systematic review and meta-analysis: a primer. *International Journal of Sports Physical Therapy*, 7(5), 493-503.
- Ince, G., Sarpel, T., Durgun, B., & Erdogan, S. (2016). Effects of a multimodal exercise program for people with ankylosing spondylitis. *Physical Therapy*, 86(7), 924-935.
- Karaman, A., Yuksel, I., Kinikli, G. I., & Caglar, O. (2017). Do Pilates-based exercises following total knee arthroplasty improve postural control and quality of life? *Physiotherapy Theory and Practice*, 33(4), 289-295. <https://doi.org/10.1080/09593985.2017.1289578>
- Kheirkhah, D., Mirsane, A., Ajorpaz, N. M., & Rezaei, M. (2016). Effects of Pilates Exercise on Quality of Life of Patients on Hemodialysis. *Critical Care Nursing Journal*, 9(3), e6981. <https://doi.org/10.17795/ccn-6981>
- Kim, S. Y., Busch, A. J., Overend, T. J., Schachter, C. L., Van der Spuy, I., Boden, C., Góes, S. M., Foulds, H. J. A., Bidonde, J. (2019). Flexibility exercise training for adults with fibromyalgia. *Cochrane Database of Systematic Reviews*, 9, CD013419. <https://doi.org/10.1002/14651858.CD013419>
- Kofotolis, N., Kellis, E., Vlachopoulos, S. P., Gouitas, I., & Theodorakis, Y. (2016). Effects of Pilates and trunk strengthening exercises on health-related quality of life in women with chronic low back pain. *Journal of Back and Musculoskeletal Rehabilitation*, 29(4), 649-659. <https://doi.org/10.3233/BMR-160665>
- Kuçuk, F., Kara, B., Poyraz, Ç., & İdیمان, E. (2016). Improvements in cognition, quality of life, and physical performance with clinical Pilates in multiple sclerosis: a randomized controlled trial. *The Journal of Physical Therapy Science*, 28(3), 761-768. <https://doi.org/10.1589/jpts.28.761>
- Küçükçakır, N., Altan, L., & Korkmaz, N. (2013). Effects of Pilates exercises on pain, functional status and quality of life in women with postmenopausal osteoporosis. *Journal of Bodywork and Movement Therapies*, 17(2), 204-211. <https://doi.org/10.1016/j.jbmt.2012.07.003>
- Leopoldino, A. A. O., Avelar, N. C. P., Passos Jr., G. B., Santana Jr., N. A. P., Teixeira Jr., V. P., Lima, V. P., & Vitorino, D. F. M. (2013). Effects of Pilates on sleep quality and quality of life of sedentary population. *Journal of Bodywork & Movement Therapies*, 17(1), 5-10. <https://doi.org/10.1016/j.jbmt.2012.10.001>
- Lim, E. J., & Park, J. E. (2019). The effects of Pilates and yoga participant's on engagement in functional movement and individual health level. *Journal of Exercise Rehabilitation*, 15(4), 553-559. <https://doi.org/10.12965%2Fjer.1938280.140>
- Liposcki, D. B., da Silva Nagata, I. F., Silvano, G. A., Zanella, K., & Schneider, R. H. (2019). Influence of a Pilates exercise program on the quality of life of sedentary elderly people: A randomized clinical trial. *Journal of Bodywork & Movement Therapies*, 23(2), 390-393. <https://doi.org/10.1016/j.jbmt.2018.02.007>
- Lopes, T. P., Kuster, P. P. dos S., Sarro, K. J., Campos, J. L., Silva, W. R. T. da, & Vancini, R. L. (2019). Efeitos do Pilates solo na qualidade de vida de mulheres saudáveis ativas. *Conexões*, 17, e019026. <https://doi.org/10.20396/conex.v17i0.8655513>
- Macedo, C. G., Haas, A. N., & Goellner, S. V. (2015). O método Pilates no Brasil segundo a narrativa de algumas de suas instrutoras pioneiras. *Pensar a Prática*, 18(3), 571-583. <https://doi.org/10.5216/rpp.v18i3.33725>
- Mallery, L. H., MacDonald, E. A., Hubleby-Kozey, C. L., Earl, M. E., Rockwood, K., & MacKnight, C. (2003). The feasibility of performing resistance exercise with acutely ill hospitalized older adults. *BMC Geriatrics*, 3, 3. <https://doi.org/10.1186/1471-2318-3-3>
- McGowan, J., Sampson, M., Salzwedel, D. M., Cogo, E., Foerster, V., & Lefebvre, C. (2016). PRESS Peer Review of Electronic Search Strategies: 2015 Guideline Statement. *Journal of Clinical Epidemiologic*, 75, 40-46. <https://doi.org/10.1016/j.jclinepi.2016.01.021>
- Medeiros, S. A., De Almeida Silva, H. J., Do Nascimento, R. M., Da Silva Maia, J. B., De Almeida Lins, C. A., & De Souza, M. C. (2020). Mat Pilates is as effective as aquatic aerobic exercise in treating women with fibromyalgia: A clinical, randomized and blind trial. *Advances in Rheumatology*, 60, 21. <https://doi.org/10.1186/s42358-020-0124-2>
- Melo, C. C. de, Rodrigues, D. B., Albuquerque Neto, S. L. de, Souza, M. V. de, & Noce, F. (2020). The influence of the Pilates method on mood states. *Brazilian Journal of Sport Psychology*, 10(1), 86-97.
- Mendonça, T. M., Terreri, M. T., Silva, C. H., Bernardino Neto, M., Pinto, R. M., Natour, J., & Len, C. A. (2013). Effects of Pilates exercises on health-related quality of life in individuals with juvenile idiopathic arthritis. *Archives of Physical Medicine and Rehabilitation*, 94(11), 2093-2102. <https://doi.org/10.1016/j.apmr.2013.05.026>
- Moola, S., Munn, Z., & Tufanaru, C. (2017). The Joanna Briggs Institute Critical Appraisal tools for use in JBI. *Systematic Reviews Checklist for Case Series*. Adelaide: The Joanna Briggs Institute.
- Natour, J., Cazotti, L. D. A., Ribeiro, L. H., Baptista, A. S., & Jones, A. (2015). Pilates improves pain, function and quality of life in patients with chronic low back pain: A randomized controlled trial. *Clinical Rehabilitation*, 29(1), 59-68. <https://doi.org/10.1177/0269215514538981>
- Odynets, T., Briskin, Y., & Todorova, V. (2019). Effects of different exercise interventions on quality of life in breast cancer patients: a randomized controlled trial. *Clinical Rehabilitation*, 18, 1534735419880598. <https://doi.org/10.1177/1534735419880598>

- Oliveira, B. F. A., Carvalho, P. R. C., de Souza Holanda, A. S., dos Santos, R. I. S. B., da Silva, F. A. X., Barros, G. W. P., Albuquerque, E. C., Dantas, A. T., Cavalcanti, N. G., Ranzolin, A., Duarte, A. L. B. P., & Marques, C. D. L. (2019). Pilates method in the treatment of patients with Chikungunya fever: a randomized controlled trial. *Clinical Rehabilitation*, 33(10), 1614-1624. <https://doi.org/10.1177/0269215519856675>
- Oliveira, L. C., Oliveira, R. G., & Pires-Oliveira, D. A. A. (2018). Effects of the Pilates exercise compared to whole body vibration and no treatment controls on muscular strength and quality of life in postmenopausal women: A randomized controlled trial. *Isokinetics and Exercise Science*, 26(2), 149-161. <https://doi.org/10.3233/IES-184118>
- Özyemişçi Taşkıran, Ö., Cicioğlu, İ., Gølmoghani-Zadeh, N., Demir Atilgan, A., Bağci, E., Günay, M., Atalay, F. (2014). Do pilates and yoga affect quality of life and physical performance of elderly living in a nursing home a preliminary study. *Turkish Journal of Geriatrics*, 17(3), 262-271.
- Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J., Grimshaw, J. M., Hróbjartsson, A., Lalu, M. M., Li, T., Loder, E. W., Mayo-Wilson, E., McDonald, S., McGuinness, L. A., Stewart, L. A., Thomas, J., Tricco, A. C., Welch, V. A., Whiting, P., & Moher, D. (2021). The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *British Medical Journal*, 372, n71. <https://doi.org/10.1136/bmj.n71>
- Pereira, J. A., Flach, M. S., & Haas, A. N. (2018). Efeitos do Método Pilates na qualidade de vida de indivíduos saudáveis: uma revisão sistemática. *Revista Brasileira de Qualidade de Vida*, 10(4), e8175. <https://doi.org/10.3895/rbqv.v10n4.8175>
- Rahimimoghadam, Z., Rahemi, Z., Sadat, Z., & Mirbagher Ajorpaz, N. (2018). Pilates exercises and quality of life of patients with chronic kidney disease. *Complementary Therapies in Clinical Practice*, 34, 35-40. <https://doi.org/10.1016/j.ctcp.2018.10.017>
- Rodrigues, B. G. S., Ali Cader, S., Bento Torres, N. V. O., Oliveira, E. M. de, & Martin Dantas, E. H. (2010). Pilates method in personal autonomy, static balance and quality of life of elderly females. *Journal of Bodywork and Movement Therapies*, 14(2), 195-202. <https://doi.org/10.1016/j.jbmt.2009.12.005>
- Roh, S. Y. (2019). The influence of Pilates participants' empirical values on their emotional responses and behavioral intentions. *Journal of Exercise Rehabilitation*, 15(6), 787-792. <https://doi.org/10.12965%2Fjer.1938622.311>
- Saltan, A., & Ankarali, H. (2021). Does Pilates effect on depression status, pain, functionality, and quality of life in university students? A randomized controlled study. *Perspectives in Psychiatric Care*, 57(1), 198-205. <https://doi.org/10.1111/ppc.12547>
- Surbala Devi, L., Ratan, K., Gopal, N., & Satani, K. (2013). Pilates in functional balance and quality of life in sub-acute stroke subjects – a randomized controlled study. *International Journal of Health and Rehabilitation Sciences*, 2(4), 204-211.
- Surbala Devi, L., Ratan, K., Parth, T., Bhatt, D., & Vasveliya, M. (2014). Pilates versus conventional balance training on functional balance and quality of life in elderly individuals: a randomized controlled study. *Scholars Journal of Applied Medical Sciences*, 2(1B), 221-226.
- Vancini, R., Rayes, A., Lira, C. A. B., Sarro, K. J., & Andrade, M. S. (2017). Pilates and aerobic training improve levels of depression, anxiety and quality of life in overweight and obese individuals. *Arquivos de Neuro-Psiquiatria*, 75(12), 850-857. <https://doi.org/10.1590/0004-282X20170149>
- Vécseyiné Kovách, M., Kopkáné Plachy, J., Bognár, J., Olvasztóné Balogh, Z., & Barthalos, I. (2013). Effects of Pilates and aqua fitness training on older adults' physical functioning and quality of life. *Biomedical Human Kinetics*, 5(1), 22-27. <https://doi.org/10.2478/bhk-2013-0005>
- Vilella, S., León-Zarceño, E., & Serrano-Rosa, M. A. (2017). Evidencias de la práctica Pilates sobre la salud mental de personas sanas. *Revista Universidad y Salud*, 19(2), 301-308. <https://doi.org/10.22267/rus.171902.92>
- Yentür, S. B., Ataş, N., Öztürk, M. A., & Oskay, D. (2021). Comparison of the effectiveness of pilates exercises, aerobic exercises, and pilates with aerobic exercises in patients with rheumatoid arthritis. *Irish Journal of Medical Science*, 190(3), 1027-1034. <https://doi.org/10.1007/s11845-020-02412-2>
- Yucel, H., & Omer, U. (2018). Pilates-based mat exercises and parameters of quality of life in women with Type 2 diabetes. *Iranian Red Crescent Medical Journal*, 20(Suppl. 1), e21919. <https://doi.org/10.5812/ircmj.21919>
- Yun, S., Park, S., & Lim, H. S. (2017). Influence of pilates training on the quality of life of chronic stroke patients. *Journal of Physical Therapy Science*, 29(10), 1830-1835. <https://doi.org/10.1589/jpts.29.1830>
- World Health Organization (WHO) (1997). Quality of Life Assessment Group. (1996). What quality of life? *World Health Forum*, 17(4), 354-356.

Appendix 1. Search strategy and databases.

Databases	Search strategy
MEDLINE	("Pilates Practitioners"[Title/Abstract]) OR ("Young People"[Title/Abstract]) OR ("Old People"[Title/Abstract]) OR (Aged[Title/Abstract]) OR (Elderly[Title/Abstract]) OR (Young[Title/Abstract]) OR Adult [Title/Abstract] AND ("Pilates"[Title/Abstract] OR "Pilates Training"[Title/Abstract] OR "Pilates Based Exercises"[Title/Abstract] OR "exercises pilates based"[Title/Abstract] OR "Pilates Based Exercises"[Title/Abstract] OR "training pilates"[Title/Abstract] OR "Pilates Method"[Title/Abstract] OR "Motor activity"[Title/Abstract] OR "Pilates Exercise" [Title/Abstract] OR "Pilates Activity"[Title/Abstract] AND ("Quality of life"[Title/Abstract] OR "Lifestyle"[Title/Abstract] OR "Life Quality"[Title/Abstract] OR "health related quality of life"[Title/Abstract] OR "Health Related Quality"[Title/Abstract] OR "HRQOL"[Title/Abstract]) AND (Observational OR "Observational Study" OR Survey OR "Cross - Sectional" OR "Cross sectional" OR Cohort OR Association OR Relationship OR Correlation)
EMBASE	('pilates practitioners':ab,ti OR 'young people':ab,ti OR 'old people':ab,ti OR aged:ab,ti OR elderly:ab,ti OR young:ab,ti OR adult:ab,ti OR adults:ab,ti) AND (pilates:ab,ti OR 'pilates training':ab,ti OR 'exercises pilates based':ab,ti OR 'pilates based exercises':ab,ti OR 'training pilates':ab,ti OR 'pilates method':ab,ti OR 'motor activity':ab,ti OR 'pilates exercise':ab,ti OR 'pilates activity':ab,ti) AND ('quality of life':ab,ti OR 'lifestyle':ab,ti OR 'life quality':ab,ti OR 'health related quality of life':ab,ti OR 'health related quality':ab,ti OR 'hrqol':ab,ti) AND (observational OR 'observational study' OR survey OR 'cross - sectional' OR 'cross sectional' OR cohort OR association OR relationship OR correlation)
WEB OF SCIENCE	AB=("Pilates Practitioners" OR "Young People" OR "Old People" OR Aged OR Elderly OR Young OR Adult OR Adults) AND AB=(Pilates OR "Pilates Training" OR "Pilates Based Exercises" OR "exercises pilates based" OR "Pilates Based Exercises" OR "training pilates" OR "Pilates Method" OR "Motor activity" OR "Pilates Exercise" OR "Pilates Activity") AND AB=("Quality of life" OR Lifestyle OR "Life Quality" OR "health related quality of life" OR "Health Related quality" OR "HRQOL") AND TS=(Observational OR "Observational Study" OR Survey OR "Cross - Sectional" OR "Cross sectional" OR Cohort OR Association OR Relationship OR Correlation)
SCOPUS	(TITLE-ABS-KEY ("Pilates Practitioners" OR "Young People" OR "Old People" OR aged OR elderly OR young OR adult OR adults) AND TITLE-ABS-KEY (pilates OR "Pilates Training" OR "Pilates Based Exercises" OR "exercises pilates based" OR "Pilates Based Exercises" OR "training pilates" OR "Pilates Method" OR "Motor activity" OR "Pilates Exercise" OR "Pilates Activity")) AND TITLE-ABS-KEY ("Quality of life" OR lifestyle OR "Life Quality" OR "health related quality of life" OR "health related quality" OR "HRQOL") AND ALL (observational OR "Observational Study" OR survey OR "Cross - Sectional" OR "Cross sectional" OR cohort OR association OR relationship OR correlation)) AND (LIMIT-TO (DOCTYPE , "ar")) AND (LIMIT-TO (SUBJAREA , "MEDI") OR LIMIT-TO (SUBJAREA , "NURS") OR LIMIT-TO (SUBJAREA , "HEAL") OR LIMIT-TO (SUBJAREA , "NEUR") OR LIMIT-TO (SUBJAREA , "PSYC") OR LIMIT-TO (SUBJAREA , "MULT"))
GOOGLE SCHOLAR	With all of the words: "Pilates Method" AND "Quality of life" AND "Pilates" With at least one of the words: "Pilates Practitioners" OR "Young People" OR "Old People" OR Aged OR Elderly OR Young OR Adult AND Pilates OR "Pilates Training" OR "Pilates Based Exercises" OR "exercises pilates based" OR "Pilates Based Exercises" OR "training pilates" OR "Pilates Method" OR "Motor activity" OR "Pilates Exercise" OR "Pilates Activity" AND "Quality of life" OR "Lifestyle" OR "Life Quality" OR "health related quality of life" OR "Health Related Quality" OR "HRQOL" AND Observational OR "Observational Study" OR Survey OR "Cross - Sectional" OR "Cross sectional" OR Cohort OR Association OR Relationship OR Correlation Where my words occurs: anywhere in the article 200 most relevant hits

Appendix 2. Excluded articles and reasons for exclusion.

Author, Year, Reference	Reason for exclusion
BAIS & PHANSOPKAR, 2021 [1];	1
CRUZ-FERREIRA et al., 2011 [2]; ULUĞ et al., 2018 [3]; LIM & HYUN, 2013 [4]; ALTAN et al., 2012[5]; SHEA & MORIELLO, 2013[6]; STAN et al., 2012 [7]; SHARMA et al., 2018 [8]; KOMATSU et al., 2016 [9]; DUARTE et al., 2017 [10]; MELLO et al., 2018 [11]; KLAUTAU et al., 2020 [12]; ARAÚJO - GOMES et al., 2018 [13]; RRECAJ- MALAJ et al., 2020[14]; FONSECA et al., 2016 [15]; MENDONÇA et al., 2013 [16]; RODRIGUÉZ - FUENTES et al., 2014 [17]; ABASIYANIK et al., 2020 [18]; LEOPOLDINO et al., 2011 [19]; VIEIRA et al., 2013 [20].	2
RUIZ- MONTERO et al., 2019 [21]; MC GRATH, O'MALLEY & HENDRIX, 2010 [22]; GASKELL, WILLIAMS & PREECE, 2019[23]; LIPKO & DARMAS, 2015 [24].	3

(1) The study has not been completed, only the expectation of what is expected from the results has been presented. (2) Did not assess the outcome of interest; (3) Methodology is not applicable to the proposed objective.

REFERENCES

- Bais A. & Phansopkar P. (2021). Impact of pilates training versus progressive muscle relaxation technique on quality of life in menopausal women-a comparative study. *Indian Journal of Forensic Medicine & Toxicology*, 15(1), 7-11. <https://doi.org/10.37506/ijfnt.v15i1.13366>
- Cruz-Ferreira, A., Fernandes, J., Gomes, D., Bernardo, L. M., Kirkcaldy, B. D., Barbosa, T. M., & Silva, A. (2011). Effects of pilates-based exercise on life satisfaction, physical self-concept and health status in adult women. *Women Health*, 51(3), 240-255. <https://doi.org/10.1080/03630242.2011.563417>
- Uluğ, N., Yılmaz, Ö. T., Kara, M., & Özçakar, L. (2018). Effects of pilates and yoga in patients with chronic neck pain: A sonographic study. *Journal of Rehabilitation Medicine*, 50(1):80-85. <https://doi.org/10.2340/16501977-2288>
- Lim, E.-J. & Hyun, E.-J. (2021). The impacts of Pilates and yoga on health-promoting behaviors and subjective health status. *International Journal of Environmental Research and Public Health*, 18(7), 3802. <https://doi.org/10.3390%2Fijerph18073802>
- Altan, L., Korkmaz, N., Dizdar, M., & Yurtkuran, M. (2012). Effect of Pilates training on people with ankylosing spondylitis. *Rheumatology International*, 32(7), 2093-2099. <https://doi.org/10.1007/s00296-011-1932-9>
- Shea, S. & Moriello, G. (2014). Feasibility and outcomes of a classical Pilates program on lower extremity strength, posture, balance, gait, and quality of life in someone with impairments due to a stroke. *Journal of Bodywork Movement Therapies*, 18(3), 332-360. <https://doi.org/10.1016/j.jbmt.2013.11.017>
- Stan, D. L., Rausch, S. M., Sundt, K., Cheville, A. L., Youdas, J. W., Krause, D. A., Boughey, J. C., Walsh, M. F., Cha, S. S., & Pruthi, S. (2012). Pilates for breast cancer survivors. *Clinical Journal of Oncology Nursing*, 16(2), 131-141. <https://doi.org/10.1188/12.CJON.131-141>
- Sharma, D., Kaur, J., Rani, M., Bansal, A., Malik, M., & Kulandaivelan, S. (2018). Efficacy of Pilates based mat exercise on quality of life, quality of sleep and satisfaction with life in type 2 diabetes mellitus. *Romanian Journal of Diabetes Nutrition and Metabolic Diseases*, 25(2), 149-156.
- Komatsu, M., Avila, M., Colombo, M., Gramani-Say, K., & Driusso, P. (2016). Pilates training improves pain and quality of life of women with fibromyalgia syndrome. *Revista Dor*, 17(4), 274-278. <https://doi.org/10.5935/1806-0013.20160088>
- Duarte, D. S., Sousa, C. A., & Nunes, C. R. O. (2017). Efeito do método Pilates e das rodas de conversa na saúde de idosos. *Fisioterapia em Movimento*, 30(1), 39-48. <https://doi.org/10.1590/1980-5918.030.001.A004>
- Mello, N., Costa, D., Vasconcellos, S. V., Lensen, C. M. M., & Corazza, S. T. (2018). The effect of the Contemporary Pilates method on physical fitness, cognition and promotion of quality of life among the elderly. *Revista Brasileira de Geriatria e Gerontologia*, 21(5), 597-603. <https://doi.org/10.1590/1981-22562018021.180083>
- Klautau, A. V., da Silva Pinto, D., Santana, B. B., Freitas Queiroz, M. A., Rangel da Silva, A. N. M., Vieira Cayres-Vallinoto, I. M., Ishak, R., & Rosário Vallinoto, A. C. (2020). Pilates exercise improves the clinical and immunological profiles of patients with human T-cell lymphotropic virus 1 associated myelopathy: A pilot study. *Journal of Bodywork and Movement Therapies*, 24(3), 1-8. <https://doi.org/10.1016/j.jbmt.2020.02.012>
- Araújo-Gomes, R. C., Valente-Santos, M., Vale, R. G. S., Drigo, A. J., & Borba-Pinheiro, C. J. (2019). Effects of resistance training, tai chi chuan and mat pilates on multiple health variables in postmenopausal women. *Journal of Human Sport and Exercise*, 14(1), 122-139. <https://doi.org/10.14198/jhse.2019.141.10>
- Rrecaj-Malaj, S., Beqaj, S., Krasniqi, V., Qorolli, M., & Tufekciwski, A. (2020). Outcome of 24 weeks of combined schroth and Pilates exercises on cobb angle, angle of trunk rotation, chest expansion, flexibility and quality of life in adolescents with idiopathic scoliosis. *Medical Science Monitor Basic Research*, 26, e920449. <https://doi.org/10.12659/MSMBR.920449>
- Fonseca, J. M. A., Radmann, C. S., De Carvalho, F. T., & Andrade Mesquita, L. S. (2016). The influence of the Pilates method on muscular flexibility, symptoms, and quality of life in women with primary dysmenorrhea. *Scientia Medica*, 26(2), ID23052. <https://doi.org/10.15448/1980-6108.2016.2.23052>
- Mendonça, T., Terreri, M., Silva, C., Bernardino Neto, M., Pinto, R. M., Natour, J., & Len, C. A. (2013). Effects of Pilates exercises on health-related quality of life in individuals with juvenile idiopathic arthritis. *Archives of Physical Medicine and Rehabilitation*, 94(11), 2093-2102. <https://doi.org/10.1016/j.apmr.2013.05.026>
- Rodríguez-Fuentes, G., de Oliveira, I. M., Ogando-Berea, H., & Otero-Gargamala, M. D. (2014). An observational study on the effects of Pilates on quality of life in women during menopause. *European Journal of Integrative Medicine*, 6(6), 631-636. <https://doi.org/10.1016/j.eujim.2014.08.003>
- Abasiyanik, Z., Yiğit, P., Özdoğar, A., Kahraman, T., Ertekin, O., & Ozakbas, S. (2021). A comparative study of the effects of yoga and clinical Pilates training on walking, cognition, respiratory functions, and quality of life in persons with multiple sclerosis: a quasi-experimental study. *Explore*, 17(5), 424-429. <https://doi.org/10.1016/j.explore.2020.07.013>
- Leopoldino, A., Avelar, N., Passos Jr, G. B., Santana Jr, N. A. P., Teixeira Jr, V. P., Lima, V. P., & Vitorino, D. F. M. (2013). Effect of Pilates on sleep quality and quality of life of sedentary population. *Journal of Bodywork and Movement Therapies*, 17(1), 5-10. <https://doi.org/10.1016/j.jbmt.2012.10.001>
- Vieira, F., Faria, L., Wittmann, J., Teixeira, W., & Nogueira, L. A. C. (2013). The influence of Pilates method in quality of life of practitioners. *Journal of Bodywork and Movement Therapies*, 17(4), 483-487. <https://doi.org/10.1016/j.jbmt.2013.03.006>
- Ruiz-Montero, P. J., Ruiz-Rico Ruiz, G. J., Martín-Moya, R., & González-Matarín, P. J. (2019). Do health-related quality of life and pain-coping strategies explain the relationship between older women participants in a Pilates-aerobic program and bodily pain? A multiple mediation model. *International Journal of Environmental Research and Public Health*, 16(18), 3249. <https://doi.org/10.3390/ijerph16183249>
- McGrath, J. A., O'Malley, M., & Hendrix, T. J. (2011). Group exercise mode and health-related quality of life among healthy adults. *Journal of Advanced Nursing*, 67(3), 491-500. <https://doi.org/10.1111/j.1365-2648.2010.05456.x>
- Gaskell, L., Williams, A., & Preece, S. (2019). Perceived benefits, rationale and preferences of exercises utilized within Pilates group exercise programmes for people with chronic musculoskeletal conditions: A questionnaire of Pilates-trained physiotherapists. *Musculoskeletal Care*, 17(3), 206-214. <https://doi.org/10.1002/msc.1402>
- Lipko, M., & Darmas, A. (2015). Physical activity as a pro-health behaviour in the opinion of adult women. *Baltic Journal of Health and Physical Activity*, 7(2), 83-95. <https://doi.org/10.29359/BJHPA.07.2.07>

Appendix 3. Avaliação do risco de viés dos estudos do tipo experimental (JBI Critical Appraisal Checklist for Analytical experimental Studies).

Table S2. Risk of bias for each individual study assessed by Joanna Briggs Institute critical appraisal checklist for Randomized Controlled Trials.

Studies	Criteria												
	1*	2*	3*	4*	5*	6*	7*	8*	9*	10*	11*	12*	13*
Altan et al. (2012)	Y	U	Y	U	U	U	Y	Y	Y	Y	Y	Y	N
Angin E, Erden Z, Can F (2015)	N	U	U	U	U	U	Y	Y	Y	Y	Y	Y	N
Borges et al. (2014)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Campos de Oliveira, Gonçalves de Oliveira, Pires-Oliveira (2015)	Y	U	Y	U	U	U	Y	Y	Y	Y	Y	Y	U
Eyigor et al. (2010)	Y	U	Y	U	U	U	Y	Y	Y	Y	Y	Y	N
Gandolfi et al. (2012)	N	N	Y	N	N	N	Y	Y	NA	Y	Y	Y	Y
García - Soidán et al. (2014)	N	N	Y	U	U	U	Y	Y	NA	Y	Y	Y	N
Karaman et al. (2017)	Y	Y	Y	U	U	U	Y	Y	Y	Y	Y	Y	N
Kheirkhah et al. (2016)	Y	Y	Y	U	U	U	Y	Y	Y	Y	Y	Y	N
Kofotolis et al. (2016)	Y	Y	N	N	N	N	Y	Y	Y	Y	Y	Y	Y
Kováč et al. (2013)	U	U	Y	U	U	U	Y	Y	Y	Y	Y	Y	N
Küçük et al. (2016)	Y	U	Y	U	U	U	Y	Y	Y	Y	Y	Y	U
Kuuckcakir et al. (2013)	Y	Y	Y	Y	U	Y	Y	Y	Y	Y	Y	Y	Y
Lim, Park (2019)	U	U	Y	U	U	U	Y	Y	Y	Y	Y	Y	N
Liposki et al. (2018)	Y	Y	Y	Y	Y	U	Y	Y	Y	Y	Y	Y	Y
Medeiros et al. (2020)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Natour et al. (2014)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Odynets, Briskin, Todorova (2019)	Y	Y	Y	U	Y	U	Y	Y	Y	Y	Y	Y	N
Oliveira et al. (2018)	Y	Y	Y	N	Y	N	U	Y	Y	Y	Y	Y	Y
Oliveira et al. (2019)	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y	Y
Özyemişçi Taşkıran et al. (2014)	Y	Y	N	U	U	U	Y	Y	Y	Y	Y	Y	N
Rahimimoghadam et al. (2018)	Y	Y	Y	U	U	U	Y	Y	Y	Y	Y	Y	Y
Rodrigues et al. (2009)	Y	Y	Y	U	U	U	Y	Y	Y	Y	Y	Y	U
Saltan, Ankaralı (2020)	Y	Y	Y	U	U	Y	Y	Y	Y	Y	Y	Y	Y
Surbala et al. (2013)	Y	Y	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y
Surbala et al. (2014)	Y	N	Y	N	N	Y	Y	Y	Y	Y	Y	Y	N
Vancini et al. (2017)	Y	Y	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y
Yentür et al. (2020)	Y	Y	Y	U	U	U	Y	Y	Y	Y	Y	Y	N
Yucel H, Omer U (2016)	Y	U	Y	U	U	U	Y	Y	Y	Y	Y	Y	U
Yun, Park, Lim (2017)	U	U	Y	U	U	U	Y	Y	Y	Y	Y	Y	U

Y = Yes, N = No, U = Unclear, NA = Not applicable

1. True randomization was used for assignment of participants to treatment groups
2. Allocation to treatment groups was concealed
3. Treatment groups were similar at the baseline
4. Participants were blind to treatment assignment
5. Those delivering treatment were blind to treatment assignment
6. Outcomes assessors were blind to treatment assignment
7. Treatment groups were treated identically other than the intervention of interest
8. Follow up was complete and if not, were differences between groups in terms of their follow up adequately described and analyzed
9. Participants were analyzed in the groups to which they were randomized
10. Outcomes were measured in the same way for treatment groups
11. Outcomes were measured in a reliable way
12. Appropriate statistical analysis was used
13. The trial design was appropriate, and any deviations from the standard RCT design (individual randomization, parallel groups) accounted for in the conduct and analysis of the trial